EFFECTIVENESS OF NEURO PSYCHOLOGICAL REHABILITATION ON COGNITION AMONG OLDER PEOPLE AT SELECTED OLD AGE HOME, MADURAI.

M.Sc (NURSING) DEGREE EXAMINATION

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A dissertation submitted to

THE TAMILNADU DR.M.G.R. MEDICAL UNIVERSITY,

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In partial fulfillment of the requirement for the degree of

MASTER OF SCIENCE IN NURSING

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EFFECTIVENESS OF NEURO PSYCHOLOGICAL REHABILITATION ON COGNITION AMONG OLDER PEOPLE AT SELECTED OLD AGE HOME, MADURAI.

Approved by Dissertation committee on

Nursing Research Guide _____

Dr. S. RAJAMANI M.Sc (N)., M.B.A (HM)., M. Sc (Psy)., Ph.D.,
Principal Incharge,
College of Nursing,
Madurai Medical College,
Madurai-20.

Clinical Specialty Guide _____

Dr. S. RAJAMANI, M.Sc (N)., M.B.A (HM)., M.Sc (Psy)., Ph.D.,
Reader in Nursing,
Department of Psychiatric (Mental Health) Nursing,
College of Nursing,
Madurai Medical College,
Madurai -20.

Medical Expert _____

Dr. T. KUMANAN, M.D., DPM.,
Professor and H.O.D,
Department of Psychiatry,
Madurai Medical College,
Madurai- 20.

A dissertation submitted to

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CERTIFICATE

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Dr. S. RAJAMANI, M.Sc (N).,
M.B.A (HM)., M.Sc (Psy)., Ph.D.,
PRINCIPAL INCHARGE,
COLLEGE OF NURSING,
MADURAI MEDICAL COLLEGE,
MADURAI – 20.

Dr. D. MARUTHUPANDIAN,
M.S., F.I.C.S., F.A.I.S.,
DEAN,
MADURAI MEDICAL COLLEGE
MADURAI – 20.

CERTIFICATE

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Name and Signature of the Clinical Specialty Guide _____

Dr. S. RAJAMANI, M.Sc (N)., M.B.A (HM)., M.Sc (Psy)., Ph.D.,
Reader in Nursing,
Department of Psychiatry (Mental Health) Nursing,
College of Nursing,
Madurai Medical College,
Madurai-20.

Name and Signature of the Head of the Department _____

Dr. S. RAJAMANI, M.Sc(N)., M.B.A (HM)., M.Sc (Psy)., Ph.D.,
Principal Incharge,
College of Nursing,
Madurai Medical College,
Madurai-20.

Name and Signature of the Dean _____

Dr. D. MARUTHUPANDIAN, M.S., F.I.C.S., F.A.I.S.,
Dean,
Madurai Medical College,
Madurai-20.

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ABSTRACT

Title : Effectiveness of neuro psychological rehabilitation on cognition among older people at selected old age home, Madurai**. Objectives:** To assess the level of cognition among older people. To evaluate the effectiveness of neuro psychological rehabilitation on level of cognition among older people. To associate the level of cognition among older people with their selected socio demographic variables. **Hypotheses:** The mean post test level of cognition will be significantly higher than mean pre test level of cognition among older people. There is a significant association between the level of cognition among older people. **Methodology:** A Pre experimental one group pre test post test design was used, 40 older people were selected by purposive sampling. Neuro psychological rehabilitation was given for 30 minutes two times a day for 20 days (20 sessions), Pre test and Post test was conducted by PGI Memory scale. **Results:** The findings revealed that there was significant improvement in the cognition level after intervention which was confirmed by $\chi 2= 32.45$, at P level 0.001**. Conclusion:** Neuro psychological rehabilitation is cost effective, non invasive, non pharmacological complementary therapy to improve the cognition level among older people.

Key words: Cognition, neuro psychological rehabilitation, older people.

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INTRODUCTION

CHAPTER I

INTRODUCTION

"No one can avoid aging but aging productively is something else"

-Katharine Graham

The concept of "old" has changed drastically over the years. Our prehistoric ancestors probably had a life span of 40 years, with the average individual living around 18 years. As civilization developed, mortality rates remained high as a result of periodic famine and frequent malnutrition. An improvement in the standard of living was not truly evident until about the middle of the 17th century. Since that time, assured food supply, changes in food production, better housing conditions, and more progressive medical and sanitation facilities have contributed to population growth, declining mortality rates, and substantial increases in longevity.

Aging is a natural process. As people become older the functioning and adaptability of the tissues and different organs decline and chances of suffering geriatric population are more. The united Nation agreed cutoff is 60+ years to refer to the older or elderly persons. Within the elderly population, further classification like oldest old (normally those 80+.) and centenarian (100+) and even super centenarian (100+) are also made.

Denham Harman postulates that ageing is the result of the progressive accumulation of changes in the body which occur with the passing of time and which cause the increase in the probability of disease and death of the individual. It can also be defined as the wearing of the structures and functions that reach a peak or plateau during development and maturations of the individuals of a given species.

As people age, they change in a myriad of ways both biological and psychological. Some of these changes may be for the better, and others are not. Primarily concerns the normally aging brain, the neuro anatomical and neurophysiologic changes that occur with age, and the mechanisms that account for them. It is not primarily about the behavioral or cognitive concomitants of those changes. Nevertheless, there is ample evidence that alterations in brain structure and function are intimately tied to alterations in cognitive function. The complexity of both the neural and cognitive functions, however, makes exact mapping between brain and behavior extraordinarily difficult, and so these relations remain largely speculative, although ultimately testable. Establishing such links between brain and cognition is the principal goal of cognitive neuroscience.

Benefits of Cognition a highly exciting, relatively young, and rapidly growing discipline of science that aims at solving how the brain gives rise to the human mind; how the brain enables one to think, plan, remember, love, build one's career, understand other people, see, hear, and move about. Solving this so-called mind-body problem has been a central quest ever since the days of ancient Greek philosophers, though many of the early philosophers mistook the brain as an organ merely responsible for cooling the body and not as the seat of thoughts, memories, emotions, and motivation that are collectively nowadays referred to as cognition.

Cognitive changes that accompany aging, both normal and pathologic. Although dementia and mild cognitive impairment are both common, even those who do not experience these conditions may experience subtle cognitive changes associated with aging. These normal cognitive changes are important to understand because, first they can affect an older adult's day to day function and, second, they can help us distinguish normal from disease states. The neuro cognitive changes observed in normal

aging. Structural and functional alterations seen in aging brains that may explain observed cognitive changes.

The changes in cognition that occur in normal human aging, in an effort to provide a backdrop against which neural changes can be interpreted. Although the relationship between brain and cognition is a dynamic one and may change across the lifespan, changes in these two domains will ultimately be related, and mechanisms underlying the changes will be discovered. Understanding age-related cognitive change will help focus and constrain neurobiological theories of aging in much the same way as theories of cognitive aging will be adapted to take account of new findings about the aging brain.

Cognitive change as a normal process of aging some cognitive abilities, such as vocabulary, are resilient to brain aging and may even improve with age. Other abilities, such as conceptual reasoning, memory, and processing speed, decline gradually over time. There is significant heterogeneity among older adults in the rate of decline in some abilities, such as measures of perceptual reasoning and processing speed. We will provide a current, brief overview of the neuropsychology of normal cognitive aging.

Population studies of aging and cognition reveal that age appears to be associated with cognitive decline. In other words as a population ages, the average cognitive ability of the population will decline. It has also has been well determined by many researchers that a variety of cognitive abilities including memory, processing speed and problem solving, executive decline increasing age. One of the most explicit finding in research on cognition and aging there are verities of cognitive abilities showing an increasing decline across life span. Cognition encompasses mental skills including attention, learning, memory, language and planning.

Cognitive decline is not inevitable. Some older adults retain excellent cognitive function well into their 70s and 80s and perform as well or better than younger adults. Age-related changes in cognitive function vary considerably across individuals and across cognitive domains, with some cognitive functions appearing more susceptible than others to the effects of aging. Much of the basic research in cognitive aging has focused on attention and memory, and indeed it may be that deficits in these fundamental processes can account for much of the variance observed in higher level cognitive processes.

According to population census 2011 there are nearly 104 million older persons (aged 60 years or above) In India; 53 million females and 51 million males. A report released by the United Nations Population Fund and Help Age India suggests that the number of older persons is expected to grow to 173 million by 2026. Both the share and size of older population is increasing over time. From 5.6% in 1961 the proportion has increased to 8.6% in 20 11. For males it was marginally lower at 8.2%, while for females it was 9.0%. As regards rural and urban areas, 71% of elderly population resides in rural areas while 29 % is in urban areas. The life expectancy at birth during 2009-13 was 69.3 for females as against 65.8 years for males. At the age of 60 years average remaining length of life was found to be about 18 years (16.9 for males and 19.0 for females) and that at age 70 was less than 12 years (10.9 for males and 12.3 for females). Kerala has got the highest life expectancy at birth, followed by Maharashtra and Punjab. The life expectancy at birth in Kerala is 71.8 years and 77.8 years for males and females respectively as per the SRS Report 2009 - 13.For 2013, the age specific death rate per 1000 population for the age group 60 - 64 years was 19.7 for rural areas and 15.0 for urban areas. Altogether it was 18.4 for the age group 60 - 64 years. As regards, sex wise, it was 20.7 for males and 16.1 for females. The old - age dependency

ratio climbed from 10.9% in 1961 to 14.2% in 2011 for India as a whole. For females and males, the value of the ratio was 14.9 % and 13.6% in 2011.In rural areas, 66% of older men and 28% of elderly women were working, while in urban areas only 46% of older men and about 11% of elderly women were working.

The continuing population growth in India during the past 50 years has been accompanied by a marked increase in the number of the aged (person aged 50 and above). i.e. Persons above the age of 50 years is the fast growing although it constituted only 7.4% of total population at the turn of the new millennium. The share of india‘s population ages 50 and older is projected to climb from 8% percent in 2050 according to the united Nations Population division (UN 2011)

Although age related cognitive decline is quite broad, there are notable exceptions. It has been observed that knowledge based abilities (also called crystallized abilities) such as verbal knowledge and comprehension continue to be improved or maintained in the lifespan. In contrast process based abilities (fluid abilities) display age related declines. For example reduced processing speed, decreased attention resources, sensory deficits, reducing working memory capacity, impaired frontal lobe function and impaired neurotransmitter function have all been cited as possible mechanism of age related cognitive decline.

Executive function is an umbrella term for cognitive processes that regulate control, and manage other cognitive processes such as planning, memory, attention, problem solving verbal reasoning, inhibition, mental flexibility, task switching, and initiation and monitoring of actions. Age related decline in executive control function (ECFs) is one plausible explanation for the decline in functional status that accompanies old age. Executive functions or cognitive process that orchestrate complex, goal

oriented activities. Declining executive control in normal ageing predicts change in functional status.

Cognitive deficits are changes in thinking, like difficulty solving problems. This category also includes dementia and memory problems, as well as many kinds of communication challenges. Communication deficits may include decreased attention, distractibility and the inability to inhibit inappropriate behavior.

Age related memory deficiencies have been extensively reported in the literature. Although short-term memory seems to deteriorate with age, perhaps because of poorer sorting strategies, long-term memory does not show similar changes. However, in nearly every instance, well educated, mentally active people do not exhibit the same decline in memory functioning as their age peers who lack similar opportunities to flex their minds. Nevertheless, with few exceptions, the time required for memory scanning is longer for both recent and remote recall among older people. This can sometimes be attributed to social or health factors (e.g. stress, fatigue, illness), but it can also occur because of certain normal physical changes associated with aging (e.g. decreased blood flow to the brain).

To make things worse, in old age it also means an old and failing body which will simply not cooperate and lets one down ever so often. Even if one does not become sans eyes, teeth, and sans in everything right away one does begin to slow down physically. Having serviced for a life time, the organs and senses seem to stutter, gasp, choke and wheeze before finally quitting. Minor ailments a major disease rear their heads up in old age and walking hours are preoccupied with symptoms and pills, diets and therapies. There is often a general physical and psychological decline, and people become less active in their old age and have the abnormality as wrinkles and liver spots on the skin, lessened hearing, diminished eyesight, slower reaction time, difficulty in

recalling memories, lessening or cessation of sex, all these things affect the older peoples physically and psychologically.

Cognitive neuroscience also yields manifold benefits to applied research and other fields of science. For example, attempts to build artificial intelligence and robots have already benefited from the knowledge of cognitive processes and the underlying neural mechanisms. Indeed, in many ways the brain is a highly efficient computer that is able to carry out many information-processing tasks more quickly than the most powerful of man-made computers. Thus, gaining deeper understanding of the core processing principles and organization of brain functions can offer important insights to computer- and computational sciences. Development of man-machine interfaces is another application area involving cognitive neuroscience for example design of “enhanced reality” where cell phone users are made aware of nearby attractions such as restaurants.

Cognitive impairment is a defining feature of dementia caused by neurodegenerative conditions such as Alzheimer's disease (AD) and cerebrovascular disease. In the milder stages of dementia, cognitive impairments are often the most disabling and distressing features for the individual and their family. For the person with dementia, memory and other cognitive difficulties can have a major impact on levels of confidence and can lead to anxiety, depression, and withdrawal from activities, which in turn can result in excess disability. Family caregivers are also affected because of the practical impact of cognitive problems on everyday life and the strain and frustration that often result. Interventions to assist with aspects of cognitive functioning, such as memory problems, and associated functional limitations are therefore important in the milder stages of dementia as they may allow the person greater independence and can potentially minimize the risk of 'excess disability. With in the broader context of

non-pharmacological interventions for people with mild dementia, there has been a steady increase in interest in the class of interventions generally referred to as cognition focused interventions, and these form the focus of the present review.

When difficulties with basic and instrumental activities of daily living arises with loss of independence then it is a definitive indicator that cognition is associated **Burdick and colleagues., (2005)** considering both the impact of cognitive decline upon everyday abilities and the importance of everyday abilities to sustained independence, a great deal of research are done to reverse or delay cognitive aging. In a recent longitudinal study on almost 2000 non demented individuals aged 50 and older, rate of decline in cognitive and functional skills is one of the strongest predictors of mortality. One reason they offer for this phenomenon is that decreased cognitive ability leads to reduced activation and less engagement in activities of daily living.

Rehabilitation as a process aimed at helping people achieve or maintain an optimal level of physical, psychological and social functioning in the context of specific impairments arising from illness or injury, thus facilitating participation in preferred activities and valued social roles. More recent views of rehabilitation include a deeper appreciation of the complex interplay between disease and ability to function a disability may persist even once the disease that triggered it has been eliminated, and likewise disability can be reduced in the face of permanent injury or chronic disease. Cognitive rehabilitation, originally developed mainly through work with younger brain-injured people but equally applicable to progressive conditions, refers to the rehabilitation of people with cognitive impairments. Although the concept continues to evolve, cognitive rehabilitation generally refers to an individualized approach to helping people with cognitive impairments, in which those affected, and their families, work together with health care professionals to identify personally relevant goals and

devise strategies for addressing these. The emphasis is not on enhancing cognitive tasks as such but on improving functioning in the everyday context. Cognitive rehabilitation interventions aim to tackle directly those difficulties considered most relevant by the person with dementia and his or her family members or supporters and target everyday situations in the real-life context. Cognitive rehabilitation approaches tend to be implemented in real-world settings since there is no implicit assumption that changes instituted in one setting would necessarily generalize to another. Goals for intervention are selected collaboratively, and interventions are usually conducted on an individual basis.

Rehabilitation might be accompanied by psycho educational activities aimed at facilitating an understanding of cognitive strengths and difficulties and by supportive discussion relating to individual emotional reactions or other needs, and where appropriate, links would be made with other possible sources of support.

Neuropsychological rehabilitation is considered to be the integral part of the management to train cognitive skills for the betterment of the academic performance. Cognitive retraining modules developed for the study includes activities such as Remote and Recent memory, Attention and Concentration, Delay recall, Immediate recall, Verbal retention similar and dissimilar Visual Retention, Recognition. Remote and recent memory measured in the study is the capacity to remember the recent and remote activities happening in day today life. Older people makes them difficult to even remember and recollect the basic information, which was found to improve significantly after the retraining program. Attention and concentration measured in the study is the capacity to attend for a period of time even in presence of distraction. It is found that there was a significant improvement in the post training assessment. The other domain such as delay recall, immediate recall, verbal retention similar and

dissimilar, visual retention, recognition shows high significant changes and improvement after manual training.

In 2002 a Joint committee of the American Psychological Association and the American Speech, Language and Hearing Association distinguished between two interestingly different paradigms, or ways of understanding cognitive rehabilitation: “Traditional Cognitive Retraining” and “Context-Sensitive Cognitive Intervention and Support”. These two approaches were defined in terms of their understanding of the focus and goals of cognitive rehabilitation, relevant assessment procedures, treatment modalities and methods, organization of treatment, and setting, content, and providers of treatment. While many professionals combine aspects of these two approaches, it helps to understand the controversies in the field by contrasting the two approaches.

As a fruit of these study, the results have established older adults can improve cognitive abilities with training improve the fluid abilities so that they can process more information over briefer periods of time.

1.1 Need for the study

It is true that every human being wants to live long but no one wants to grow old. Old age viewed as an unavoidable, unhealthy, problem ridden phase of life that we all are compelled to live; marking time until our final exit from life itself. One of the major demographic transition in the world has been the considerable increase in the absolute and relate number of older people. This has been proven in the case of developing countries like India where ageing is occur more rapidly due the decline in fertility combined by increased in life expectancy of people achieved through medical intervention.

The aim of the study was to determine the cognition level of older people and improve the cognitive function well being of the older people. The purpose of this

chapter is to outline the changes in cognition that occur in normal human aging, in an effort to provide a backdrop against which neural changes can be interpreted. Although the relationship between brain and cognition is a dynamic one and may change across the lifespan, changes in these two domains will ultimately be related, and mechanisms underlying the changes will be discovered. Understanding age related cognitive change will help focus and constrain neurobiological theories of aging in much the same way as theories of cognitive aging will be adapted to take account of new findings about the aging brain.

The theme of the 2017 International Day of Older Persons is about enabling and expanding the contributions of older people in their families, communities and societies at large. It focuses on the pathways that support full and effective participation in old age, in accordance with old persons' basic rights, needs and preferences. This year's theme underscores the link between tapping the talents and contributions of older persons and achieving the implementation of the 2030 Agenda and the Madrid International Plan of World report on ageing and health found that while Action on Ageing, which is currently undergoing its third review and appraisal process. (WHO)

The International Day of Older Persons is an opportunity to highlight the important contributions that older people make to society and raise awareness of the joys and challenges of ageing in today's world. The theme for 2017 was "Stepping into the Future: Tapping the Talents, Contributions and Participation of Older Persons in Society". Our ability to participate, contribute and exploit our talents is largely dependent on our health. Yet, they are living longer, there is little evidence to suggest that these extra years are spent in good health. (WHO)

According to the UN projection by the year of 2050, the number of older people is expect to be more then three forth from 600 million to almost 2 billion. In our country

the life expectancy has gone up from 20 years in the beginning of the 20th century to 62 years today.

The world population continues to grow older rapidly as fertility rates have fallen to very low levels in most world regions and people tend to live longer. When the global population reached 7 billion in 2012, 562 million (or 8.0 percent) were aged 65 and over. In 2015, 3 years later, the older population rose by 55 million and the proportion of the older population reached 8.5 percent of the total population. With the post World War II baby boom generation in the United States and Europe joining the older ranks in recent years and with the accelerated growth of older populations in Asia and Latin America, the next 10 years will witness an increase of about 236 million people aged 65 and older throughout the world. Thereafter, from 2025 to 2050, the older population is projected to almost double to 1.6 billion globally, whereas the total population will grow by just 34 percent over the same period.

A necessary components of successful aging requires maintenance of one's cognitive ability to preserve every day functioning to negotiate one's environment and to actively engage in life. Even moderate declines in cognitive ability without dementia have been shown to impair one's ability to adhere to medications to manage finances to prepare food to shop for groceries, and to perform house hold, all of which can affect one's health, safety, and quality of life. Therefore methods for improving or maintaining one's cognitive ability must be explored to improve successful aging and autonomy Chores. **(McGuire, ford & Ajani, 2006)**

A neurological rehabilitation is designed to meet the needs of the individual depending on the specific problem. The goal of neuropsychological rehabilitation is to help of the patient return to the highest level of cognitive function and independence possible, while improving overall quality of life.

Seniors, who constitute the fastest growing segment of the world's population are living later decades of their lives with concerns of cognitive decline while still maintaining physical health. Fortunately emerging evidence suggests that the aging brain has remarkable neural plasticity to counteract the cognitive consequences of aging the appropriate does and type of cognitive stimulation and physical exercise. Research efforts are now focusing on identifying cognitive training protocols that could lengthen optimal cognitive functioning in meaningful ways, not simply by achieving higher performance on isolated tasks or skills within laboratory settings but by improving cognitive skills critical for everyday life functions. To date research on cognitive training programs in seniors has focused on structured practice targeting specific cognitive strategies, specific cognitive functions (e.g. memory, attention, concentration)

Rehabilitation include training of older people daily living activities, to improve cognitive impairment such as attention, memory, problem solving. One of the main concerns in the neuropsychological field is the stimulation and rehabilitation of cognitive abilities when these are impaired either because of a brain damage (e.g. stroke, etc), or lifecycle characteristics. During the last decades, a lot of studies have been focused on testing the effectiveness of non pharmacological treatments (Yanguas et al., 2008). But recently, the way in which the stimulation is provided has changed from paper and pencil exercises to computerized ones.

Nurses as health educators can instruct patients how to promote successful cognitive aging. Many older adults are not aware that cognitive abilities can be sustained through nutrition, improved sleep hygiene and enriched cognitive environments. Yet cognitive remediation training shows that cognitive exercise are important and effective in improving cognitive ability. Evidence suggests that even

engaging in a mentally active life style can promote successful cognitive aging and delay the onset of dementia in some people.

Theories of ageing in 1990 **Mevdevev** in an excellent review stated that there were more than 300 theories of ageing and the number is increasing. This is a natural consequence of the fact that we are quickly improving our understanding of the natural phenomena that are associated with ageing using new experimental methods and ideas. In fact, almost any major discovery in cellular and molecular biology has given rise to a new family of theories of ageing or to improved versions of old ones. Thus, the task of reviewing these theories is becoming more and more difficult because they are either very selective or they are now old fashioned. **Vijg and Muller** some of the old hypotheses of ageing laid the ground for the big scientific revolution in our understanding of ageing, which occurs in our days. We believe that the expectation of a unified theory which includes all the phenomena associated with ageing is, at the present time, unrealistic. Moreover, it is generally accepted that we do not have all the pieces to the puzzle of ageing.

Neuro psychological rehabilitation training is based on the speed of processing theory of aging this theory posits that as people age, the speed in which they process information slows. This slowing impacts the efficiency and function of other domains such as memory, executive functioning, and psychomotor ability.

Neuro psychological rehabilitation training aims to improve executive functioning in other adults are measured by problems solving, logical pattern recognition, and decision making abilities. So the researcher interested in studying the effect of neuro psychological rehabilitation to improve the cognitive function among older people.

1.2 Statement of the problem

A study to evaluate the effectiveness of Neuro Psychological Rehabilitation on cognition among older people at selected old age home Madurai.

Aim of the study

Assess the effectiveness of neuro psychological rehabilitation on level of cognition among older people.

1.3 Objectives of the study

- To assess the level of cognition among older people at selected old age home Madurai.
- To evaluate the effectiveness of neuro psychological rehabilitation on level of cognition among older people at selected old age home, Madurai.
- To associate the level of cognition among older people at selected old age home, Madurai with their selected socio demographic variables.

1.4 Hypotheses

H_1: The mean post test level of cognition will be significantly higher than mean pre test level of cognition among older people at selected old age home in Madurai

H_2: There is a significant association between the level of cognition among older people at selected old age home Madurai with their selected socio demographic variables.

1.5 Operational definitions

Effectiveness

In this study it refers to the intended outcome of neuro psychological rehabilitation on level of cognition among older people measured by PGI memory scale.

Neuro psychological rehabilitation

In this study Neuro psychological rehabilitation refers to nursing intervention regarding physical exercise, news paper reading, visual discrimination picture task, tracing mazes, time lapse, number cancellation, visual memory task, word memory task given 25-30 mints twice a day for 4weeks.

Cognition

In this study cognition refers to older people recalling their memory attention, information and concentration, verbal and visual retention, recognition of the objects in their day to day life.

Older people

In this study older people refers to who is more than 60 years of age both male and female and residing in selected old age home at Madurai.

Old age home

In this study inba illam is a old age home admit male and female old age people those who are not cared by their family members.

1.6 Assumptions

- Increase in age may cause decreased in level of cognition.
- Older people may differ in the level of cognition

1.7 Delimitation

This study limited to

- Inba illam old age home, Madurai.
- The study period is limited to 4 - 6weeks

1.8 Projected outcome

1. The study will helps to identify the level of cognition among older people at selected old age home.
2. The study helps to improve the level of cognition among older people by providing the information taught by the researcher.

REVIEW OF LITERATURE

CHAPTER II

REVIEW OF LITERATURE

Researchers generally undertake a literature search to familiarize themselves with a knowledge base. A review of literature is a systemic identification, location, scrutiny and summary of written materials that contain information on research problems.

A review of literature helps to assess what is already known, what is still unknown and untested, justify the need for its replication throw some light on the feasibility of the study and problems that may be encountered. It also helps to involve promising methodological stools, which sheds light on ways to improve the efficiency of data collection and obtain useful information on how to increase the effectiveness of data analysis.

The overall process of review of literature is to develop a strong knowledge base to carry out research and other scholarly educational and clinical practice activities. It helps to determine the gaps consistencies and in consistencies I the literature about the particular subject under study.

The related literature is revived from the published, unpublished article, Medline and internet search to broaden the understanding and insight in to the selected the problem under the study. This review of literature is abroad overview of studies, which are organized chronologically and arranged under the following sections.

The review of literature includes the following

1) Literature related to cognition on older people

2) Literature related to effectiveness of neuro psychological rehabilitation

3) Literature related to effectiveness of neuro psychological rehabilitation among older people

2.1 Literature related to cognition on older people

Rachel A Goodwin, Nadina B.Lincoin, (2018). Conducted a multicentre, single-blind, randomized controlled crossover trial on NeuroPage for people with Multiple sclerosis living in the community. Samples were selected control condition participants received 38 participants aged 28 women and 10 were men by postal questionnaires after each condition. There were no significant differences between Neuro Page and **control conditions on the Everyday Memory Questionnaire ($p = 0.41$, $d = 0.02$).**

Seyun Kim, PhD., (2015) conducted a randomized controlled trial on performance of everyday activities in elderly people with early-stage Alzheimer's disease. 43 elderly people (15 men, 28 women) selected by Mini Mental State Examination (MMSE) score of 18 or above. Randomly assigned in two groups. Significant improvements were observed in rating of occupational performance in rehabilitation group, control group did not show any significant difference in any tests between before and after the intervention.

Miller MG, Hamilton DA, Joseph JA, Shukitt-Hale B, (2014) conducted a study randomized, double-blind, placebo-controlled trial on cognition among older adults. 37 participants (13 men and 24 women) between the ages of 60 and 75 years, were recruited into a randomized. Participants in the blueberry group showed significantly fewer repetition errors in the California Verbal Learning test ($p = 0.031$, $\eta_p^2 = 0.126$) and easily achievable quantities of blueberry to the diets of older adults can improve some aspects of cognition .Controls group no improvement in gait or balance was observed.

Gennis V, Garry PJ, Haaland KY, Yeo RA, Goodwin JS, (2013) conducted a a cohort of healthy elderly men and women on cognitive status initially and at 5 years

and follow up. Samples were 60 years with no major illnesses. Baseline testing of hearing and cognition was performed in 224 subjects; 112 subjects underwent cognitive testing at 5 years follow up. The study concludes baseline hearing level did not predict change in memory or cognitive screening test scores during the follow up period. There was no evidence for a major effect of hearing acuity on cognitive function over time in this group of healthy elderly.

Shimane, (2012) conducted a cross sectional study on cognitive functioning at Japan Ohanan town. 356 male and 510 female was participated. Study shows 30% of participants were smokers, and 461(53.2) reported drinking alcohol. Around 30% of participants were physically active; 303 participants took medication for hypertension and 664 participants (76.7%) were drivers. p values less than 0.05 were considered statistically significant.

Boivin, MJNakasujja, et al., (2010) conducted a randomized controlled trial of CCRT for both severe malaria and non-malaria cohorts of children in Ugandan. Sample were 150 school-age children with severe malaria and 150 with non-malaria children. Malaria children assigned to the limited CCRT intervention arm were significantly better than passive controls on KABC II Mental Processing Index ($P = 0.04$), Sequential Processing (working memory) ($P = 0.02$) and the Conceptual Thinking subtest (planning/reasoning) ($P = 0.02$).

Lee kim, et al., (2008) conducted community based longitudinal study among older people on Cognitive ability predicts functional limitations as well as e in physical function. Samples 977 older persons aged 65 years. Physical function were assessed by tests scoring functional (upper and lower body) and (activities of daily living) Cognitive function was evaluated by mini mental status examination.

Cognitive status independently predicted functional limitation as well as disability in older people.

Henry W, Mahncke, Bonnie B, Connor et al., (2006) conducted a randomized, controlled study to assess on memory enhancement in healthy older adults. 182 participants consented and were randomized into the study, with 62 in the experimental training (ET) group, 61 in the AC group, and 59 in the NCC group. As per the study reveal age range of fully evaluated (at post training) study participants 50% were male and female significant improvement ($P < 0.001$ for speed of processing, $P = 0.022$ for forward word recognition span, two-tailed *t* test with repeated measures), with speed of processing performance improving by 90% and forward recognition memory span performance improving by 10%.

2.2 Literature related to effectiveness of neuro psychological rehabilitation

Kaldoja ML, MLange, et.al., (2014) conducted a study computer assisted FORAMEN Rehab program for training on attention in children with mild traumatic brain injury (MTBI) and partial epilepsy (PE). 8 children between the ages of 9-12 years with attention impairment (3 with PE and 5 with MTBI) and 18 healthy controls participated. After the intervention patients sustained and complex attention improved. Long-term follow-up revealed continuing positive rehabilitation effects. 100% compliance suggested that the used method is attractive for children

Mazur-Mosiewicz A, et,al., (2014) conducted a study comprehensive literature including the Cochrane database. 2,059 participants identified, 577 samples were participated and all were investigated. The effectiveness of specific Cognitive Rehabilitation strategies in patients with either left or right temporal lobe resections. In this study revealed CR should be given greater attention after Epilepsy Surgery.

McDougall S, House B, (2012) conducted a true experimental design to assess effect on neuro psychological rehabilitation. 40 samples were selected by randomized sampling method. Participants an experimental group (n=20) who were asked to use the Nintendo DS regularly over a 6 week period was compared with control group (n=20). Analyses revealed that improvements were primarily in the attention and concentration. Although neuro psychological rehabilitation appeared to have some efficacy, other factors such as perceived quality of life and perceived cognitive functioning were at least equally important in determining outcomes.

Cipriani et al., (2011) conducted a study on computer based cognitive training program in patients with MCI (N=10), Alzheimer's disease (AD, N=10) and multiple system atrophy (MSA, N=3). Each patient attended two training programs with an interval of 4-8 weeks. After 3 months at the end of the second training program the MCI group improved on memory test score and the AD group improved on verbal fluency, executive functions and on MMSE scores. The MSA group did not show any changes in scores before and after treatment.

Nacke. L Nacke, A., and Lindley C.A, (2009) conducted a comparative study on rehabilitaion form on effectiveness, efficiency self assessment, and neuro Psychological rehabilitation experience in Sweden .This study employs a 2 X 2 mixed factorial design (age group young and old x rehabilitation form paper and Nintendo DS) Effectiveness was evaluated in task completion, time efficiency as error rate, together with self assessment measures and rehabilitation experience. Results indicated that players, regardless of age, are more effective and efficient using paper pen than using a Nintendo DS console.

Willis, et.al., (2006) conducted a randomized controlled single–blind study on neuro psychological rehabilitation in improving on cognition in older adults in US.

2832 persons was recruited. Ten sessions training for memory, orientation, reasoning, 4 sessions booster training at 11 and 35 months after training in a random sample of those who completed training. The reasoning group reported significantly less difficulty in the instrumental activities of daily living (IADL) than the control group (effect size, 0.29; 99% CI, -0.002 to 0.51) nor memory training (effect size, 0.20;99% CI,-0.06 to 0.46) had a significant effect on IADL.

2.3 Literature related to effectiveness of neuro psychological rehabilitation among older people

Mridula. C, Jobson A, Dr. R. Subhashini, (2016) conducted a Pre and Post experimental design 20 children between age group 6 and 7 years participated. Pre and Post intervention assessment was done using PGI scale. Highly significant improvement was noted in cognitive skills retraining program postoperatively. Manualized Cognitive retraining started immediately postoperatively helps to improve cognitive skills in CHD children. This helps the Children to cope up with academics which develop positive approach of life.

Rosti-Otajärvi EM, Hämäläinen, (2014) conducted a study Randomized controlled trials (RCTs) and quasi randomized trials effects on neuropsychological rehabilitation in Multiple Sclerosis. 986 participants (966 Multiple Sclerosis participants and 20 healthy controls). Neuropsychological rehabilitation reduces cognitive symptoms in Multiple Sclerosis improve memory span confidence interval (CI) 0.20 to 0.88, P = 0.002) and working memory (CI 0.09 to 0.57, P = 0.006). Cognitive training combined with other neuropsychological rehabilitation methods was found to improve attention (CI 0.01 to 0.28, P = 0.03).

Nicolas Langer, Claudia. C. Von Bastian, (2013) conducted a double blind training study. Total 66 subjects participated in this study, each group 30 subjects

selected randomly. Two groups were matched accordingly to age, gender, experience using a computer and cognitive activity in daily life. Participants trained extensively for 4 weeks about 30 mints in each session total sessions 20. As per study revealed no significant in pre training session between two groups (t =.81, p =.40). The study results found significant main effect of post test (t =2.77, p = .008).

Ananthi, (2011) conducted a quasi experimental study to evaluate the effectiveness of Reality Orientation Therapy on dementia among the elderly in a selected old age home of Madurai. A total of 32 samples were selected in the old age home both group and individual sessions were carried out in such a way that each individual attends two groups sessions and two individual sessions per week and it was administered for a period of 4 week. At the end of 4^{th} week post test was conducted. The major findings of the study was that mean post test level of dementia score (1.93) was lesser than the mean pre test level of dementia score (4.08). The obtained t-value 7.9993 was statistically highly significant at 0.01 level of significant

Talassi, et al., (2007) conducted a comparative study on cognitive rehabilitation programme (experimental) and non cognitive rehabilitation programme (control). Experimental group mild cognitive impairment (n=30), control group mild cognitive impairment (n=7) Experimental group mild dementia (n=24) control group mild dementia (n=5). Experimental group received CCT, OT, BT. Control group received either physical rehabilitation OT or BT. Results of this study computer training programme showed an improvement. The control group no significant improvement.

Ball et al., (2007) conducted a study on combined data from six studies using a specified protocol of speed of processing training in order to evaluate training gains. 2,039 elderly subjects (mean age=73.94, SD=5.96) with or without speed of processing deficits and everyday abilities of older adults. The results suggested that training

produced immediate improvements across all subtests and performance on instrumental activities and driving especially in those with speed of processing deficits. In addition, age and education had little to no impact on training gains and the participants maintained these gains for at least 2 year.

Ball.K.Edwards, J.D & Ross, L.A, (2007) conducted a meta analytical study from six studies conducted in Alabama university. Participants 2,039 community dwelling older adults ranging in age from 55 to 95 years .Each of these six studies investigated the impact of completion of the computerized speed of processing training protocol upon the cognitive and every abilities of older adults .Results indicated that training produces immediate improvements across all subtests of the Useful Field of view test, particularly for older adults with initial speed of processing deficits. Age and education had little to no impact on training gain.

K.M.Volkers and E.J.A.Scherder, (2006) conducted a cross sectional study, Longitudinal randomized controlled trial on physical performances are related to specific cognitive functioning in older people .Total participants in this study 134 (96 women) with cognitive impairment 38 participants could not be analyzed. Cognitive impairment to measured by MMSE a test to measure global functioning that is orientation, attention, word recall, calculation, language abilities. As per the study reveals physical exercise for increased physical performance can improve cognitive functioning. Difference between participants in p value <0.005

Ball, et al., (2002) conducted a study on cognitive training interventions improved mental abilities and daily functioning in elderly. 2832 participants aged 65 to 94 years old and were recruited from six metropolitan areas in the United States. Three distinct cognitive interventions were used memory, reasoning and speed training. They

were trained to organize word lists with images and mental associations in order to recall them. The exercises involved laboratory memory tasks (e.g. recalling a list of nouns) as well as memory tasks related to cognitive activities of everyday life (e.g. remembering a shopping list). The results suggested that the cognitive training interventions improved targeted cognitive abilities in an effective way.

2.4 Conceptual Frame Work

A conceptual frame work is one that present typically constructed to provide general explanation of relationship between the concepts of research study they are usually constructed by using researcher own experience, previous research findings or several theories or models. The investigator adopted modified Imogene king's goal attainment theory (1981) based on the personal interpersonal systems including perception, judgment action and transaction. Theory focused on interpersonal system reflects king's belief that the practice of nursing is differentiated from that of other health profession by what nurses do with and for individual. The major elements of the theory are in the interpersonal system in which two people ,who ae usually strangers, come together in a health care organization to help and be helped to maintain a state of health that permits functioning in roles.

The investigator adopted goal attainment as a basic theory for conceptual framework which is aimed at effectiveness of neuro psychological rehabilitation on knowledge of cognition.

Major concepts describe these phenomenon

Perception

Perception in each person representation of reality the elements of perception are importing of energy from the environment and organizing it. By information, transforming energy processing information storing information and exporting information in from of overt behavior.

In this study, investigator perceives that there is memory impairment among older people at selected old age home and need for neuro psychological rehabilitation to improve the cognition and subject perceived the importance of NPR and identify the impairment of their cognition.

Judgment

Judgment is decision which is made by both the researcher and participants. The researcher decides to conduct pre test and to provide neuro psychological rehabilitation to improve the cognition after 20 sessions of Neuro Psychological Rehabilitation among older people to participate in the research study. Participants decided to participated neuro psychological rehabilitation.

Action

Action refers to the activity to achieve the goal what the individual perceives. In this study it is a mutual goal setting to increase the cognition level. Investigator prepare and give the neuro psychological rehabilitation daily in the morning and evening, 30 minutes for 20 sessions.

Transaction

After the intervention there is a changes in the cognition among older people through Neuro Psychological Rehabilitation and it is measured by PGI Memory scale

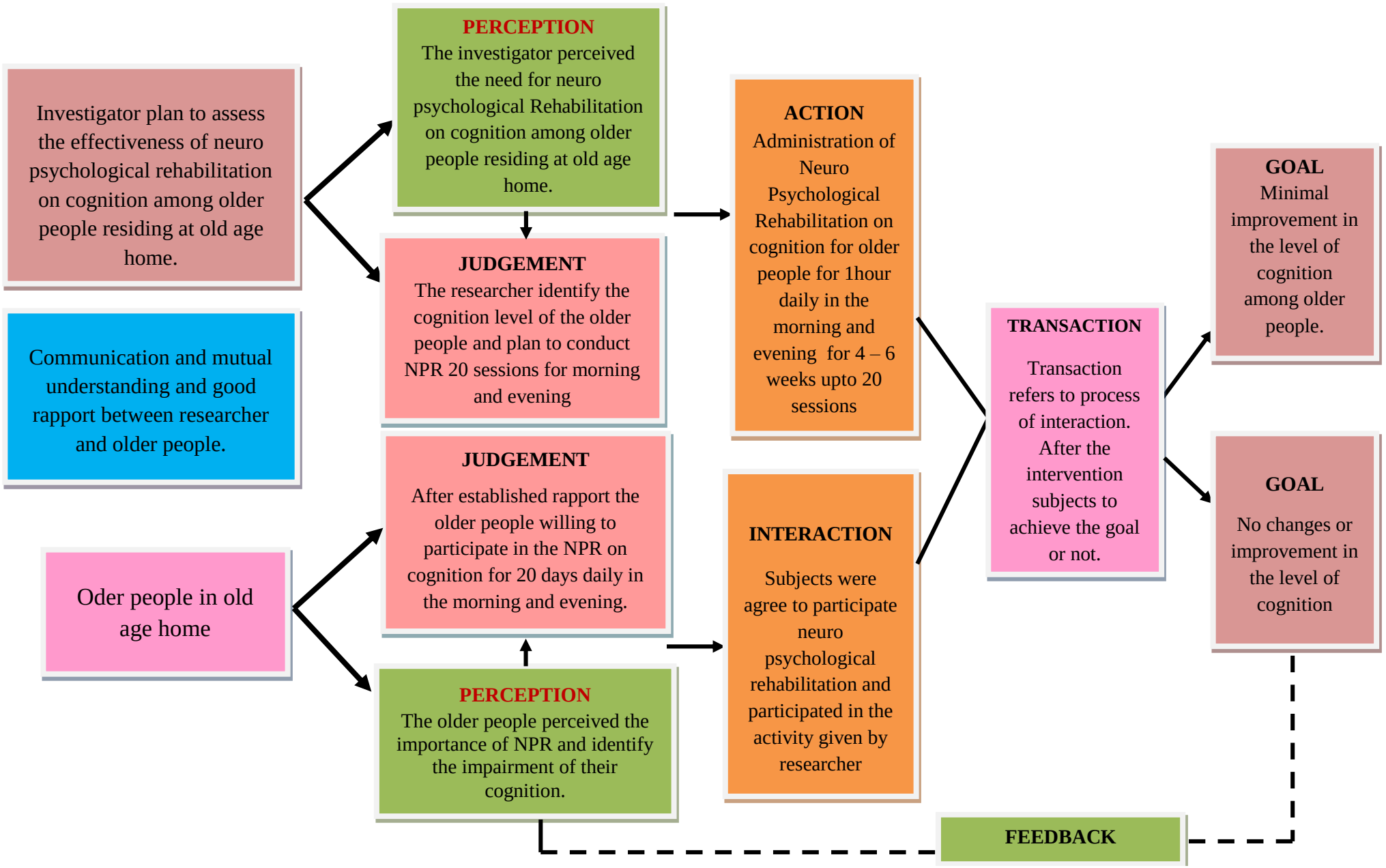


FIG : 1 CONCEPTUAL FRAME WORK BASED ON MODIFIED IMOGENE KING GOALS ATTAINMENT THEORY (1981)

RESEARCH METHODOLOGY

CHAPTER III

RESEARCH METHODOLOGY

The methodology of research indicates the general pattern of organizing the procedure for assembling valid and reliable data for investigation. This chapter provides a brief explanation of the method adapted by the investigator in the study. It includes the research approach research design and variables and setting of the study, population, sample and sample size, sample technique description of the tool, pilot study, data collection procedure and plan for data analysis.

The present study aims to evaluate the effectiveness of Neuro Psychological Rehabilitation on cognition among older people at selected old age home, Madurai.

3.1 Research approach

The research approach is the most essential part of any research. The entire study is based on it. In this study effectiveness of neuro psychological rehabilitation on cognition among older people was evaluated. Therefore a quantitative evaluative approach was used to test the effectiveness of intervention.

3.2 Research design

A pre experimental one group pre test-post test design was used in this study. Pre experimental design involves the manipulation of an independent variable and lack of randomization and control group.

PRE TEST	INERVENTION	POST TEST
O_1	**X**	O_2

KEY

O_1- Pre test to assess the level of cognition among older people on day 1.

X- Neuro psychological rehabilitation is given in the way of teaching, guiding and observing the cognition daily in the morning and evening 20–30 mints for 5 consecutive days.

O_2- Post test to determine the level of cognition among older people.

3.3 Variables

Independent Variables: Neuro psychological rehabilitation

Dependent Variables: Level of Cognition among older people

3.4 Study settings

The setting was selected based on acquaintance of the investigator with the Institution, feasibility of conducting the study, availability of the sample, permission and proximity of the setting to investigator.

This study was conducted in inba illam old age home at Madurai. Which is 8.4 km from the college, and it consists of 46 in mates in which 29 were females and 17 were males. It provides medical facilities. It also has provision for recreation and a place for religious activities and meeting.

3.5 Population

Target population

The target population of the study is the older people residing old age home.

Accessible population

Older people residing in selected old age home (inba illam) at Madurai.

3.6 Sample

The study population comprised of older people who are residing in selected old age home, Madurai and those who met the inclusion criteria.

3.7 Sample size

The sample size is 40 older people.

3.8 Sampling technique

Non probability (Purposive**)** Sampling Technique was used in this study.

3.9 Criteria for sample selection

Inclusion criteria

- Older people who is > 60 years of age.
- Older people who have mild cognitive impairment.

Exclusion criteria

- Those who having sensory deficit.
- Older people with psychiatric illness

3.10 Research tool and technique

- The tool used for the study PGI Memory Scale.
- The Technique used for the study was a interview method.
- The tool consisted of two sections.

Description of tool

TOOL I: (Socio demographic variables)

It has questions related to socio demographic variables includes age, sex, religion, education, previous occupation status, previous income per month, present source of income, duration of stay in the old age home, health status, marital status, type of food.

Tool II: PGI memory scale

Description of PGI Memory Scale

1. Remote memory
2. Recent memory
3. Mental balance
4. Attention and Concentration
5. Delayed recall
6. Immediate recall
7. Verbal retention for similar pairs
8. Verbal retention for dissimilar pairs
9. Visual retention
10. Recognition

3.11 Scoring Interpretation

Section II :- PGI Memory Scale a 10 item questionnaire, which were rated below**.**

Scores are calculated by summing the scores for the given items. The scores of each respondent over the scales are then evaluated as per the severity rating index below.

80 – 100 = Excellent
60 – 80 = Above average
40 – 60 = Average
20 – 40 = Below average
0 – 20 = Low level memory

3.12 Reliability of the tool

The reliability of an instrument is the degree of consistency with which it measures the attribute and it is supposed to be measuring over a period of time. The

tool was a standardized one. Test retest method was used to assess the internal consistency which reached satisfactory reliability score of r = 0.86. Hence the tool was considered as reliable and was used in this study.

3.13 Validity of the tool

The content validity of the tool was obtained by giving the tool to five of the experts in the field of nursing, psychology, psychiatry, epidemiology and statistics. Based on their suggestions reframing of the tool was done

3.14 Pilot study

A formal permission was obtained from ethical committee and president in old age home sellur, Madurai. 5 older people (who were not included in the main study) who fulfill the inclusion criteria with regard to the settings, with the cooperation of the older people and the availability of the sample, in a manner in which a final study would be done. It was carried over for the period of 7 days from 21.05.18 to 27.05.18.The findings of the pilot study revealed that the study was feasible and practicable. The structured interview method was used for this study. Data were analyzed to find out the practicability to conduct the study. The pilot study revealed that the study was feasible and practicable.

3.15 Data collection procedure

- The study was conducted at old age home Inba illam, Pasumalai, Madurai. Prior the data collection Ethical clearance was obtained from the ethical committee of Government Rajaji Hospital Madurai-20 and the president of old age home, Inba illam, Pasumalai, Madurai.
- Data was collected from 04.06.2018 to 13.07.2018. Before conducting the study, a brief self introduction and explanation regarding the nature and purpose of the intervention to the subjects.

- The investigator explained the purpose of the study, oral and written informed consent was obtained from all the study participants. .
- The study participants cognition level assessed by PGI Memory Scale before and after the intervention.
- Period of study was 4-6 weeks.
- Total subjects in the inba illam 46 male and female older people. Among them 40 older people were included, 3 (1 male and 2 female) older people were not included in the study because they not in the inclusion criteria and remaining 3 (2 male and 1 female) older people withdraw from the study. Pre test was done on 1st day and Neuro Psychological Rehabilitation was given 20-30 mints in morning and evening daily for 5 consecutive days and its continue for 4 weeks totally 20 sessions was given. Post test was conducted after 20 sessions by same PGI Memory Scale.

Neuro Psychological Rehabilitaion schedule is

- 8am to 8.15 am - Group task- physical exercise
- 8.15 am to 8.30am - Newspaper reading
- 8.30am to 9.00am - Breakfast
- 9am to 9.30 am - Individual paper work task- Visual discrimination work sheet task, tracing mazes, number cancellation, time lapse.
- 9.30 am to 11.30am - Individual task 15 subjects-visual and word memory
- 11.30am to 12pm - Prayer
- 12pm to 1pm - Individual task 7 subjects visual and word memory

- 1pm to 2.00pm - Lunch
- 2pm to 4.30pm - Individual task 18 subjects visual and word memory

Morning sessions – 22 subjects were participate

Evening sessions – 18 subjects were participate

Methods of improving cognition

- **Physical activity: S**imple physical exercise like warm-up, walking in figure of eight for 15 minutes. It helps to increased serotonin, dopamine, Endorphin.
- **News paper and books reading:** Reading a daily news paper for 15 minutes to listen and share common issues.
- **Visual discrimination work sheet task:** The work sheet contains pictures assembled in 4 pictures in one row with 4 columns. Ask the individual participants to observe and identity the different with the same picture.
- **Tracing mazes**: Individual subjects were ask to play tracing mazes and complete the maze 5 minutes.
- **In time lapse**: The work sheet contains 4-6 visual analog clocks ask the participants to see and mark the exact time display in the clock.
- **Number cancellation task:** Numbers from 0-9 are being displayed in an unorganized jumbled manner in the work sheet. Ask the participants to strike out a specific number given by the researcher.
- **Visual memory task:** Allow the subjects to visualize 10 pictures in a sheet for 3 minutets and ask them to recollect the pictures what they had seen earlier.
- **Word memory task: Showing:** 15 name of the items list out by the researcher for 2 times ask the participants and allow 5 minutes to recollect the items already list out by the researcher.

3.16 Plan for data analysis

After the data collection the collected data was organized, tabulated summarized and analyzed. The data was analyzed according to objectives of the study by using descriptive and inferential statistics, Descriptive statistics, Frequency, Percentage distribution, Mean and standard deviation of subject was used to identify the cognition level of older people.

Descriptive statistics

- Frequency and percentage was used to analysis the socio demographic variables of older people at selected old age home, Madurai.
- Mean and standard deviation was used for assessing the pre test and post test level of cognition among older people at selected old age home, Madurai.

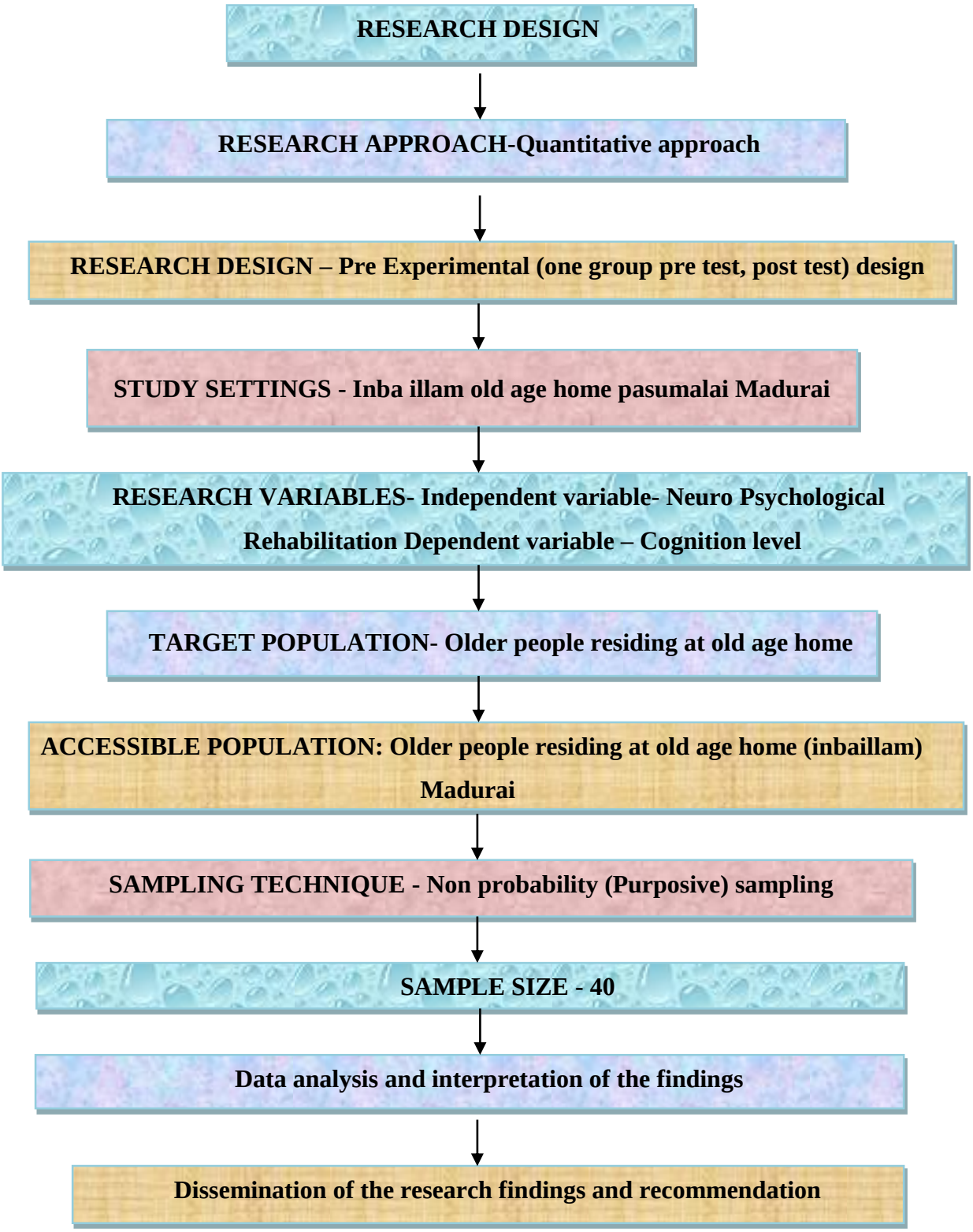
Inferential statistics

- Paired t-test was used to evaluate the effect of Neuro psychological rehabilitation
- Chi-square analysis was used to find out the association between level of cognition among older people with their selected demographic variables.

3.17 Protection of human rights

Research proposal was approved by the dissertation committee, prior to the pilot study and the main study. Permission was obtained from the principal of college of nursing and president of Inbaillam old age home. An oral and written informed consent of each study samples was obtained before starting the data collection. Benefits of the study were explained to all the study subjects. Clearly explained that the subjects may withdraw from the study at anytime without any penalty. Assurance was given to the subjects that confidentiality would be maintained throughout the study. Debriefing of the study results was done after the approval of dissertation

3.18 Schematic representation of research methodology



DATA ANALYSIS AND INTERPRETATION

CHAPTER - IV

DATA ANALYSIS AND INTERPRETATION

This chapter explains the statistical analysis performed on the collected data. Analysis is the method for reading quantitative data meaningful and intelligible information, so that the research problem can be studied and tested, including relationships between the variables.

The data assembled, analyzed, tested, for their significance. The findings based on the statistical analysis are presented in this chapter. Descriptive statistics was used for analyzing data in the light of objective of the study.

The data collected were interpreted under the following sections.

Section I

Distribution of older people according to their socio demographic variables.

Section II

Distribution of older people according to their level of cognition.

Section III

Association between the level of cognition among older people and their selected socio demographic variables.

Section-I

Distribution of older people according to their selected socio demographic variables.

Table-1

Frequency and percentage distribution of subjects according to their selected socio demographic variables

n=40

Socio Demographic Variables		f	%
Age	1. 60-65 years	18	45.00
	2. 66-70 years	15	37.50
	3. Above 70 years	7	17.50
Sex	1. Male	14	35.00
	2. Female	26	65.00
Religion	1. Hindu	14	35.00
	2. Christian	26	65.00
	3. Muslim	0	0.00
	4. Others	0	0.00
Educational status	1. No formal education	9	22.50
	2. Primary education	16	40.00
	3. Higher school education	3	30.00
	4. Higher secondary education	12	7.50
Previous occupational status	1. Government employee	0	0.00
	2. Private employee	6	15.00
	3. Self employee	3	7.50
	4. Daily wages	24	60.00
	5. Unemployment	7	17.50
Previous income per month	1. Rs. 1000- 5000/-	23	57.50
	2. Rs 6000 – 10000/-	4	10.00
	3. Rs .10001-15000/-	3	7.50
	4. Rs.15001-20000/-	3	7.50
	5. Rs. No income	7	17.50

Present source of income per month	1. From home	30	75.00
	2. From government	6	15.00
	3. From relatives	4	10.00
Duration of stay in home	1. < 1 year	7	17.50
	2. 1 - 5 years	18	45.00
	3. 6 - 10 years	9	22.50
	4. 11 -15 years	4	10.00
	5. 16 - 20 years	2	5.00
Marital status	1. Married	35	87.50
	2. Unmarried	5	12.50
	3. Divorce	0	0.00
	4. Separated	0	0.00
Health status	1. Healthy	40	100.00
	2. Unhealthy	0	0.00
Type of food	1. Vegetarian	4	10.00
	2. Non vegetarian	36	90.00

Table 1 reveals that **majority of older people** 18 (45.00%) were in the age group between 60 - 65 years, 15 (37.50%) were in the age group between 66-70 years and 7 (17.50%) were in the age group of more than 70 years.

Most of the participants 26 (65.00%) were female participants and 14 (35.00%) were male participants.

With regards to religion in older people, majority 26 (65.00%) were Christian, 14 (35.00%) were Hindu, none of them Muslim and others.

While discussing educational status, majority of the participants, 16 (40.00%) had primary education, 12 (30.00%) had higher secondary education, 9 (22.50%) had no formal education and the remaining 3 (7.50%) had higher school education.

With respect of previous occupational status majority of the participants 24 (60.00%) were working as daily wages, 7 (17.50%) were unemployed, 6 (15.00%) were

private employee, 3 (7.50%) were self employee and none of them were government employee.

When comparing the previous income per month, majority of the participants 23 (57.50%) were earned between Rs.1000-5000/-, 7 (17.50%) were had no income, 4 (10.00%) were earned between Rs.5001-10000, 3 (7.50%) were earned between Rs.10,001-15,000, 3 (7.50%) were earned between Rs. 15,001-20,000.

As far as present source of income, majority of them 30 (75.00%) were received from old age home, 6 (15.00%) were received from government (old age pension) and 4 (10.00%) were received from relatives.

While considering duration of stay in old age home, majority of older people 18 (45.00%) were stayed between 1-5 years, 9 (22.50%) were stayed between 6-10 years ,7 (17.50%) were stayed between less than one year, 4 (10.00) were stayed between 11-15 years and 2 (5.00%) were stayed between 16-20years.

While stating the marital status, majority of participants 35 (87.50%) were married and 5 (12.50%) were unmarried.

While mentioning the health status, all the participants 40 (100%) were had good health.

According the type of food, majority of participants 36 (90.00%) were non vegetarian and 4 (10.00%) were vegetarian.

Distribution of subjects according to age

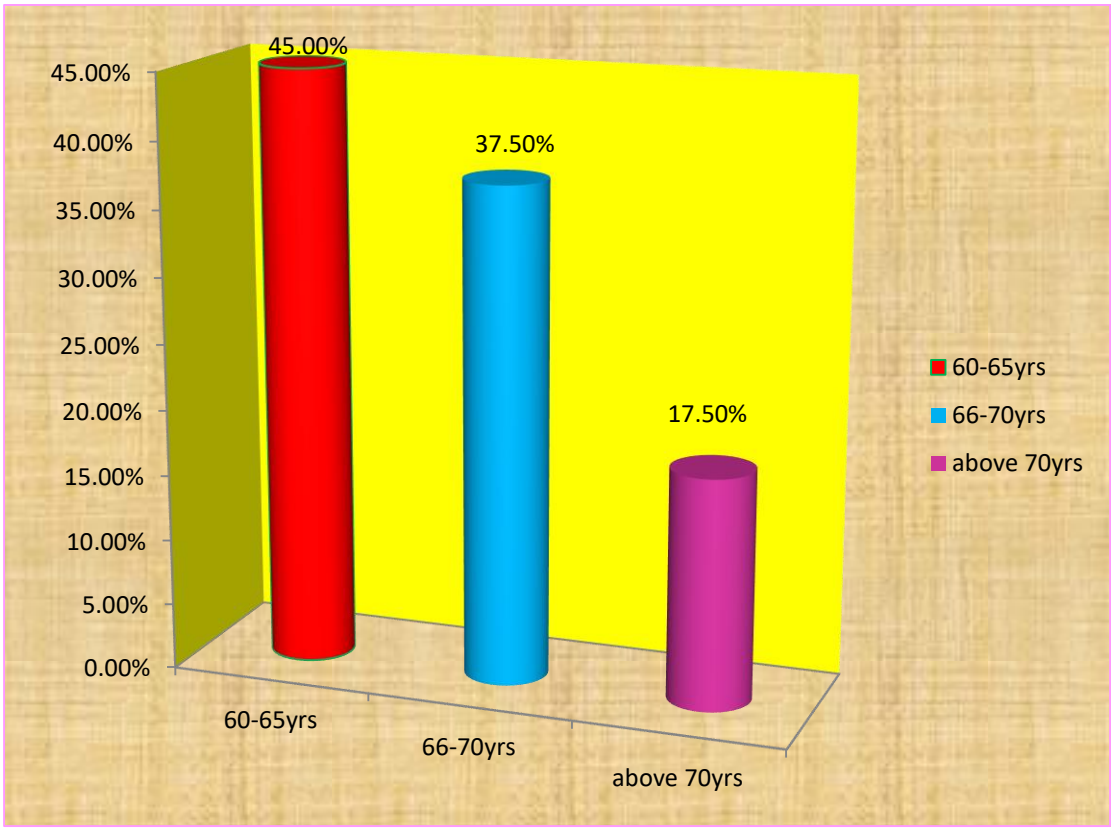


Figure 2: Cylinder diagram portrays the distribution of older according to their age in years.

Majority of older people 18 (45.00%) were in the age group between 60 - 65 years, 15 (37.50%) were in the age group between 66-70 years and 7 (17.50%) were in the age group of more than 70 years.

Distribution of subjects according to sex

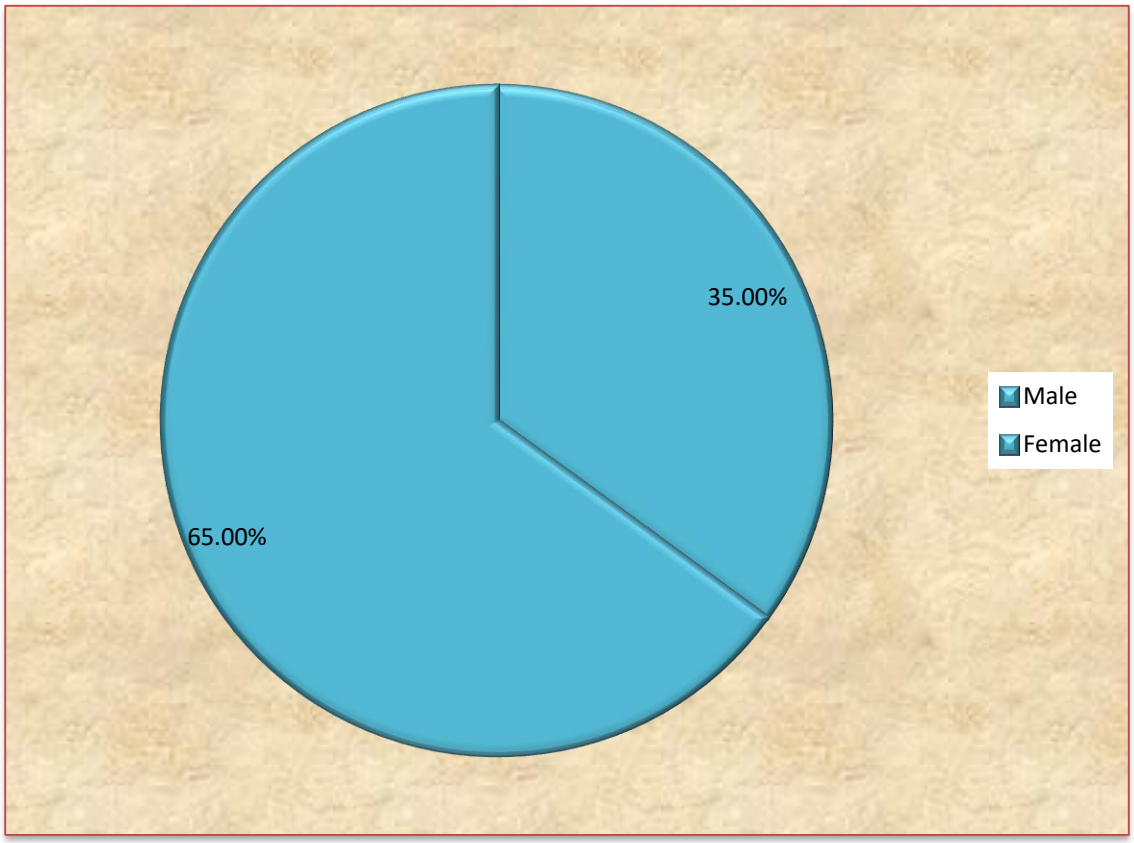


Figure 3: Pie diagram identifies the distribution of older people according to their sex.

Most of the participants 26 (65.00%) were female participants and 14 (35.00%) were male participants.

Distribution of subjects according to religion

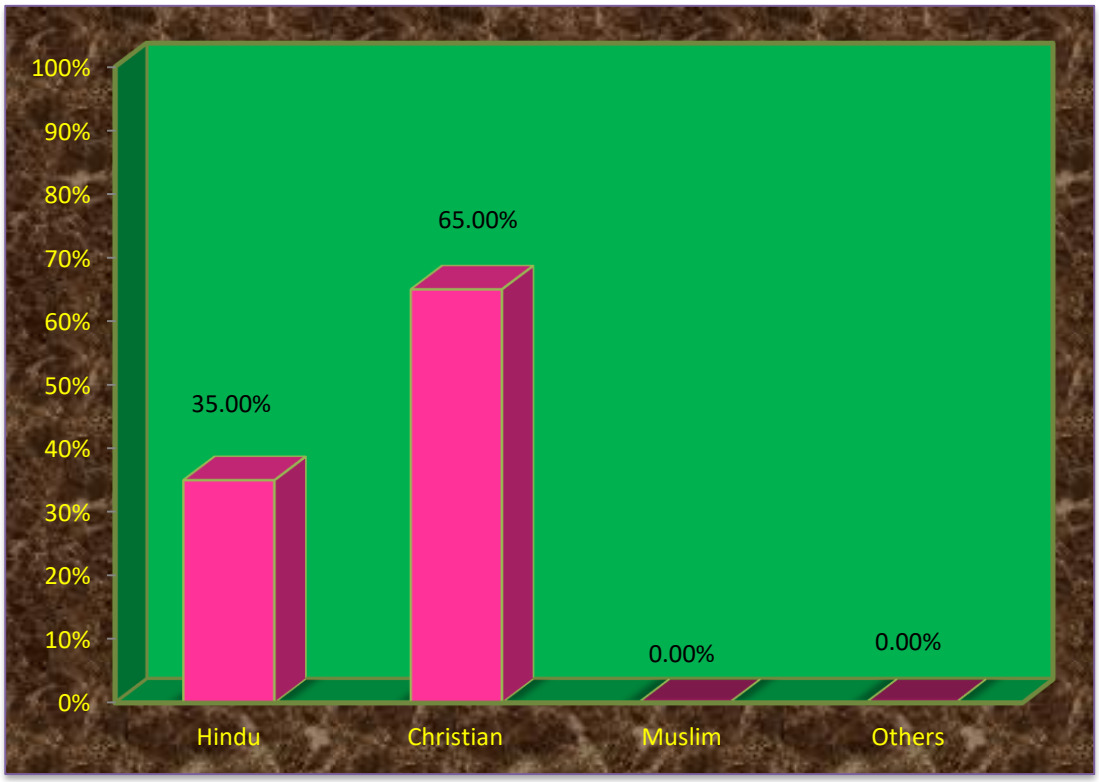


Figure 4: Simple bar diagram states the distribution of older people according to their religion

Majority of older people 26 (65.00%) were Christian, 14 (35.00%) were Hindu, none of them Muslim and others.

Distribution of subjects according to educational status

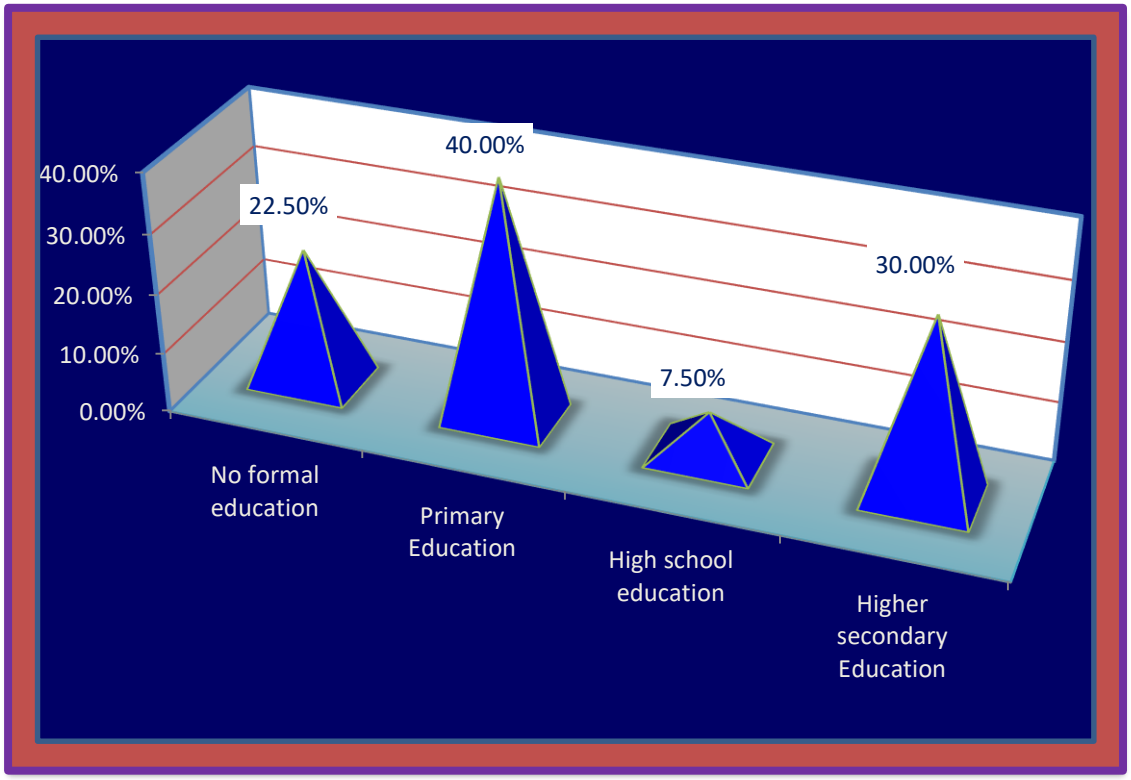


Figure 5: Pyramid diagram shows the distribution of older people according to their educational status.

Majority of the participants, 16 (40.00%) had primary education, 12 (30.00%) had higher secondary education, 9 (22.50%) had no formal education and the remaining 3 (7.50%) had higher school education.

Distribution of subjects according to previous occupational status

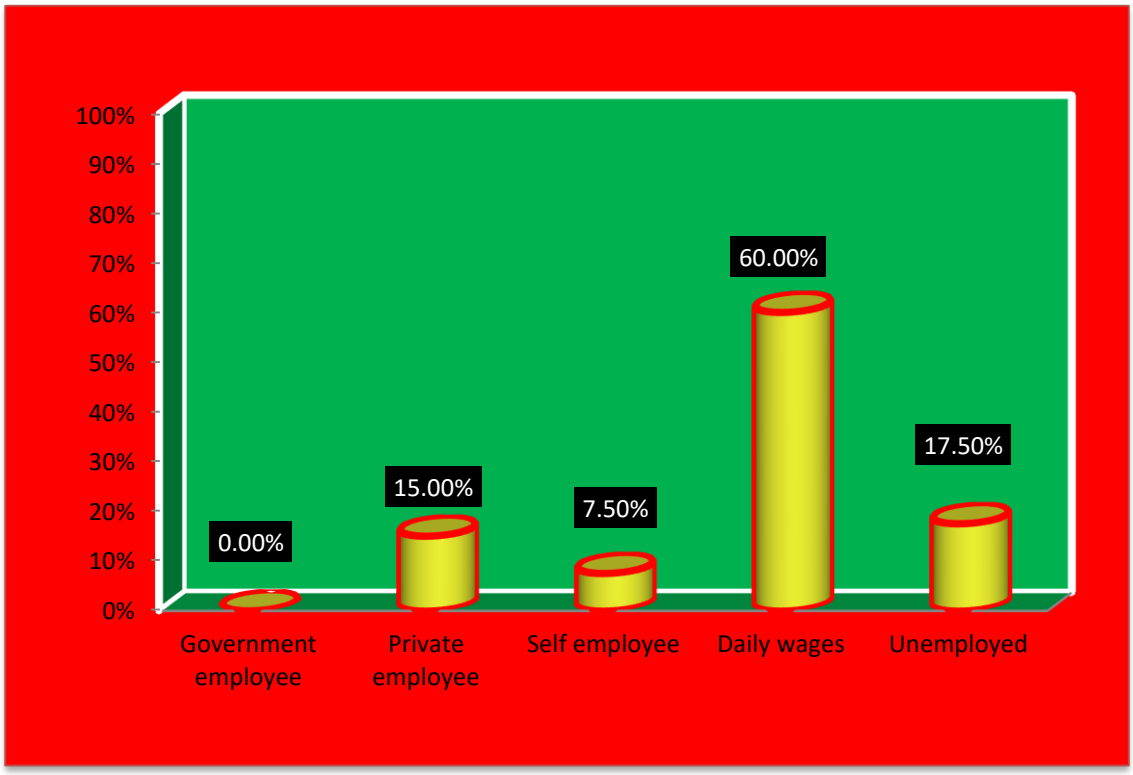


Figure 6: Stacked cylinder diagram manifests the distribution of older people according to their previous occupational status.

Majority of the participants 24 (60.00%) were working as daily wages, 7 (17.50%) were unemployed, 6 (15.00%) were private employees and 3 (7.50%) were self employee, and none of them government employee.

Distribution of subjects according to previous income per month

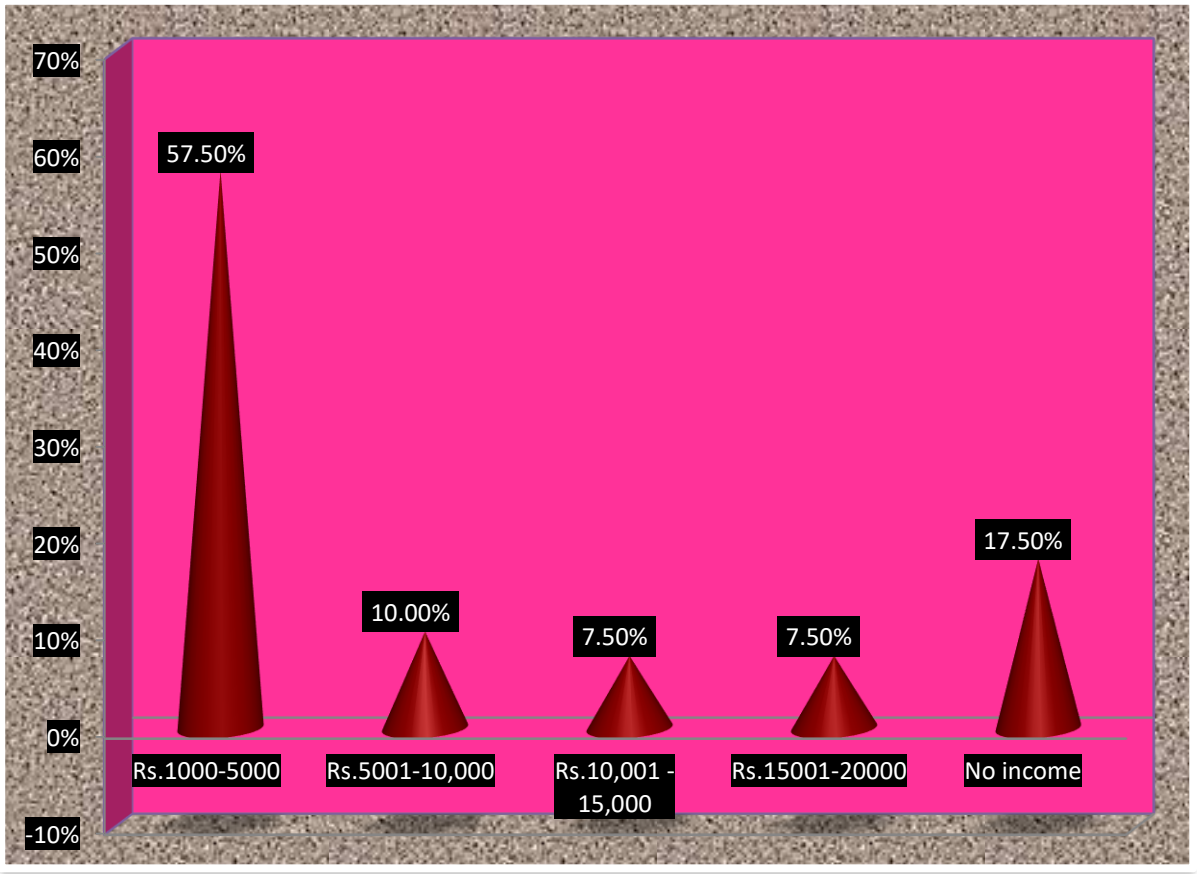


Figure 7: Clustered cone diagram depicts the distribution of older people according to their previous income per month.

Majority of the participants 23 (57.50%) were earned between Rs.1000-5000/, 7 (17.50%) were had no income, 4 (10.00%) were earned between Rs.5001-10000, and 3 (7.50%) were earned between Rs.10,001-15,000, 3 (7.50%) were earned between Rs. 15,001-20,000.

Distribution of subjects according to present source of income per month

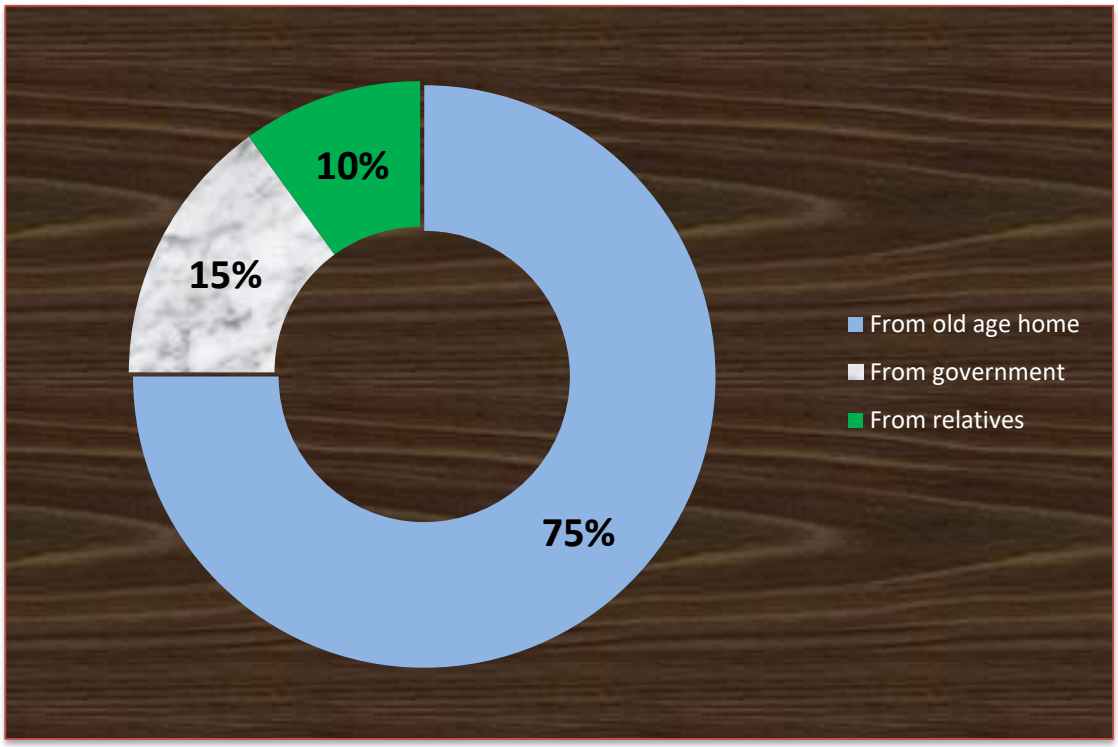


Figure 8: Daughnut diagram identifies the distribution of older people according to their present source of income permonth.

Majority of them 30 (75.00%) were received from old age home, 6 (15.00%) were received from government (old age pension) and 4 (10.00%) were received from relatives.

Distribution of subjects according to duration of stay in home

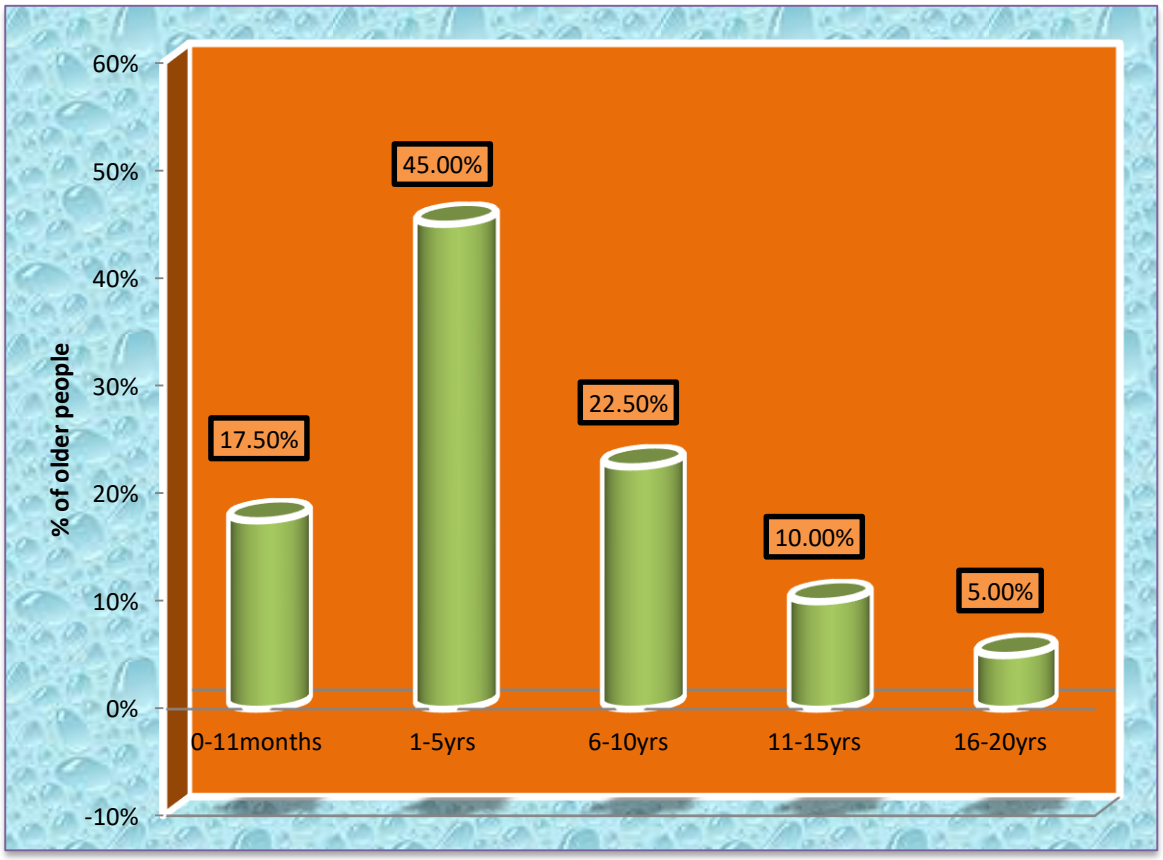


Figure 9: Cylinder diagram shows that distribution of older people according to their duration of stay in home.

Majority of older people 18 (45.00%) were stayed between 1-5 years, 9 (22.50%) were stayed between 6-10years, 7 (17.50%) were stayed between less than one year, 4 (10.00) were stayed between 11-15 years and 2 (5.00%) were stayed between 16-20 years.

Distribution of subjects according to marital status

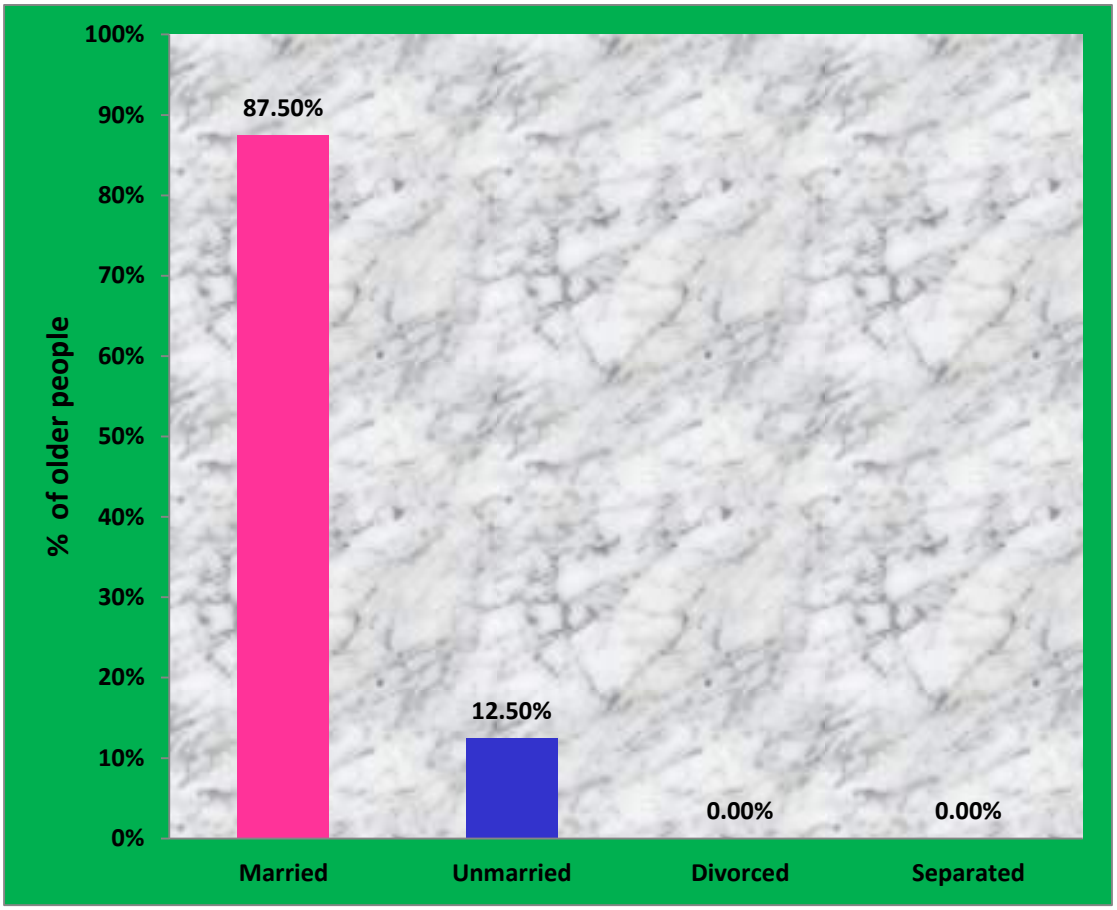


Figure 10: Simple bar diagram explains the distribution of older people according to their marital status.

Majority of participants 35 (87.50%) were married and 5 (12.50%) were unmarried.

Distribution of subjects according to health status

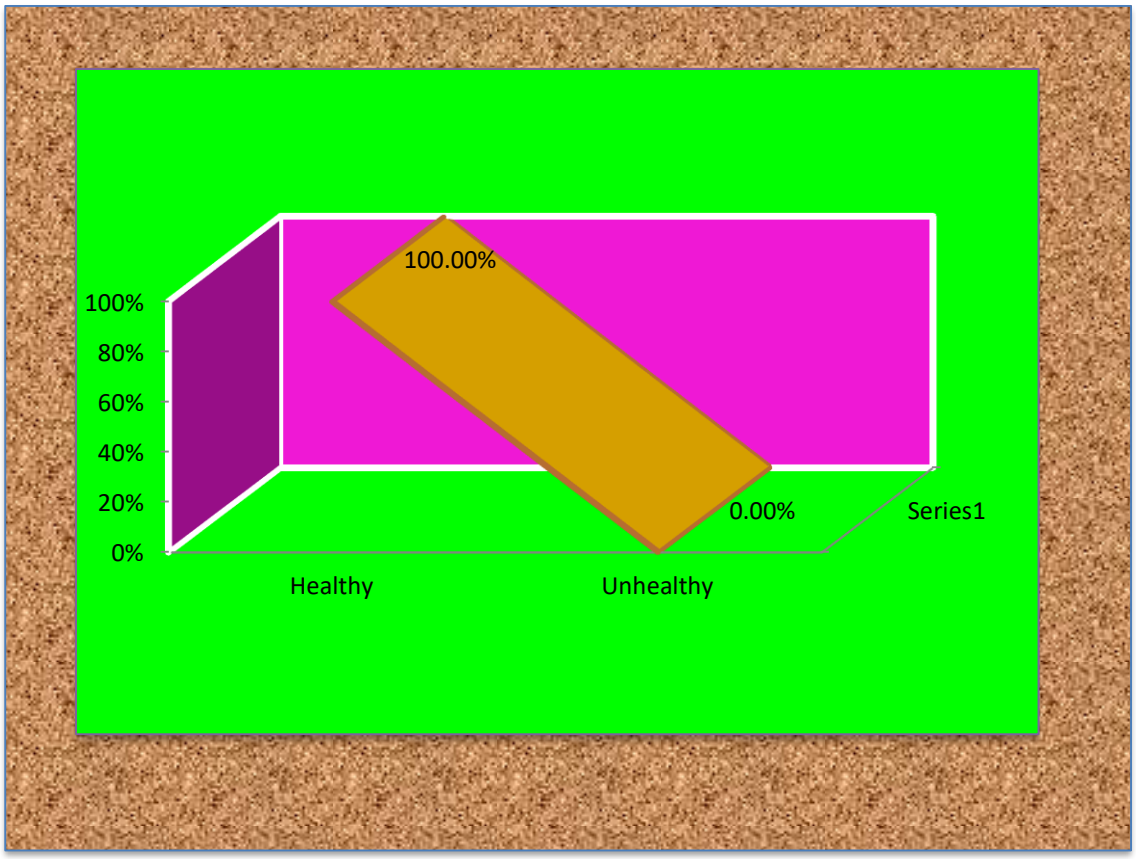


Figure 11: Line diagram showing the distribution of older people according to their health status.

Majority of the participants 40 (100%) were had good health.

Distribution of subjects according to type of food

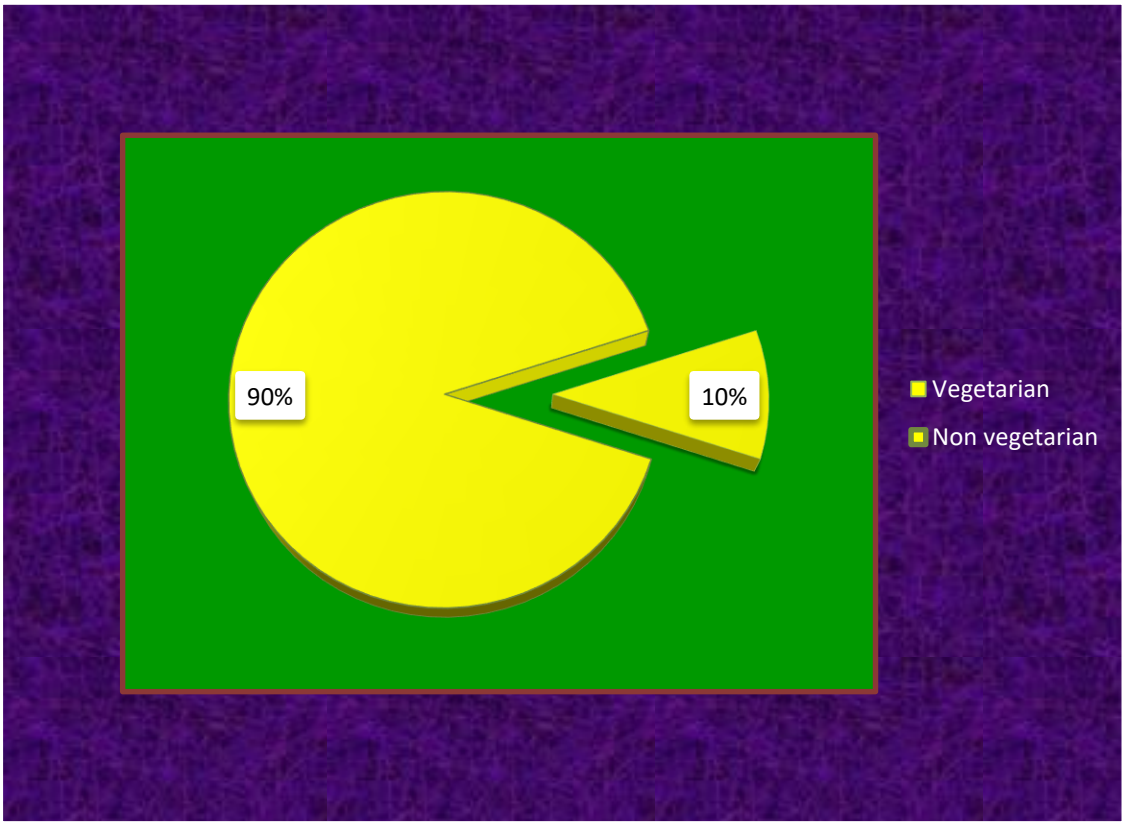


Figure 12: Exploded pie diagram narrates the distribution of older people according to their type of food.

Majority of participants 36 (90.00%) were non vegetarian and 4 (10.00%) were vegetarian.

Section -II

Distribution of older people according to their level of cognition.

Table 2

Frequency and percentage distribution of subjects according to their pre test level of cognition.

n=40

Level of cognition	(f)	%
Low level of memory	0	0.0
Below average	8	20
Average	32	80
Above average	0	0.0%
Excellent	0	0.0%
Total	**40**	**100.0%**

The above table-2 showed that, in the Pre test, majority of them 32 (80%) were had average level of memory, 8 (20.0%) below average level of memory, none of them had above average, or excellent, or low level of memory

Pre test level of cognition among older people.

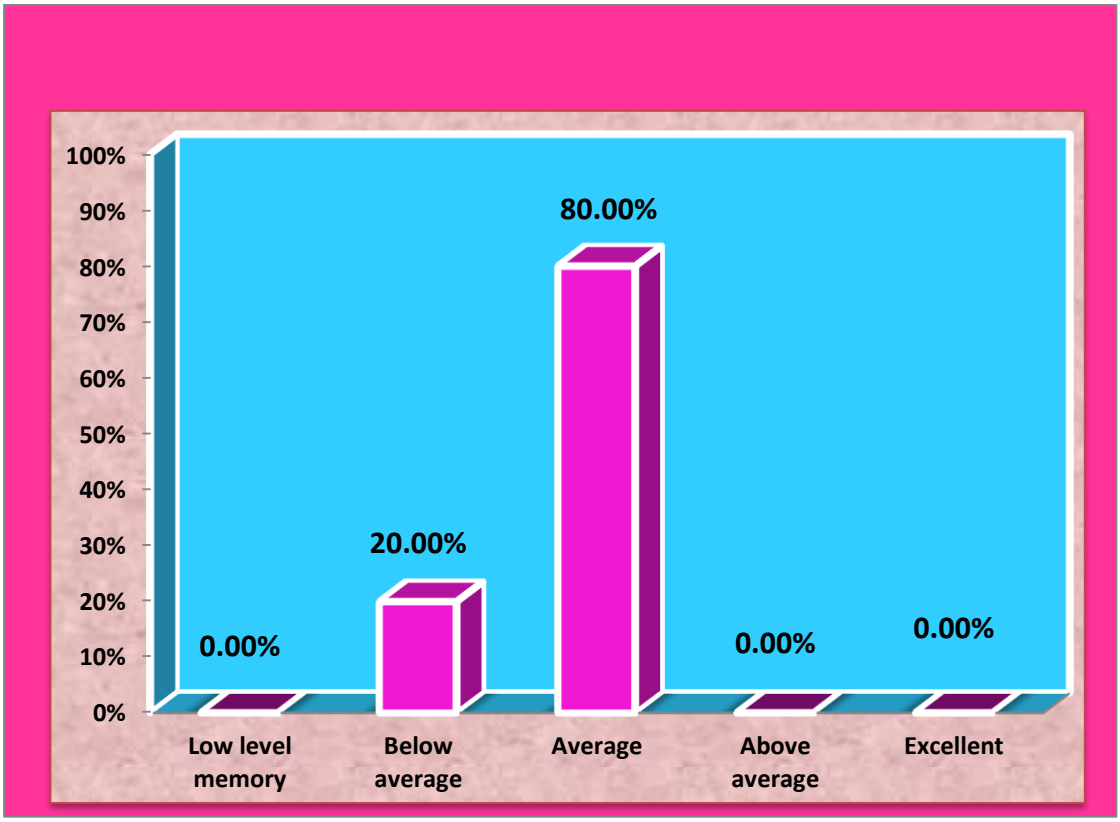


Figure 13: Simple bar diagram shows the distribution of pre test level of cognition among older people.

In the Pre test, majority of them 32 (80%) were had average level of memory, 8 (20.0%) below average level of memory, none of them had above average, or excellent, or low level of memory.

Table 3: Frequency and percentage distribution of subjects according to their post test level of cognition.

n=40

Post test level of cognition	F	%
Low level memory	0	0.0%
Below average	0	0.0%
Average	13	32.5%
Above average	20	50.0%
Excellent	7	17.5%
Total	**40**	**100.0%**

The above table-3 depicts the post test level of cognition among older people. In the Post test, majority of them 20 (50.0%) were had above average level of memory, 13 (32.5%) were had average level of memory, 7 (17.5%) were had excellent memory, none of them had below average, or low level of memory.

Post test level of cognition among older people.

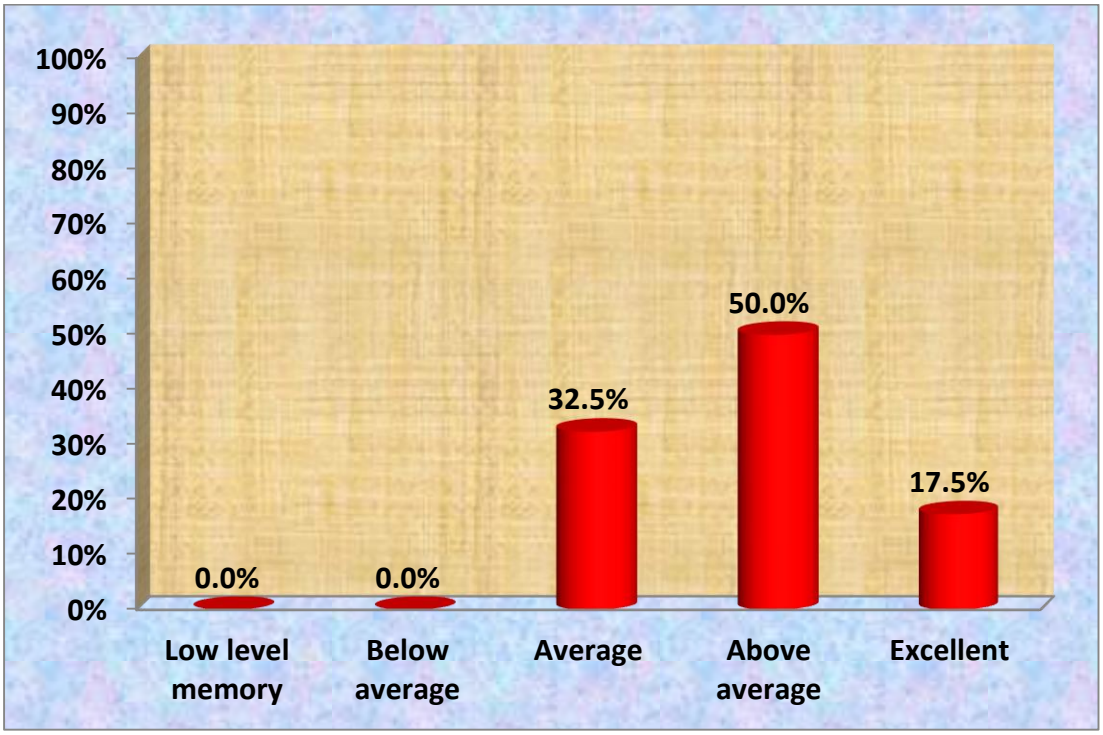


Figure 14: Cylinder diagram reveals the distribution of post test level of cognition among older people.

In the post test level of cognition among older people. In the Post test, majority of them 20 (50.0%) were had above average level of memory, 13 (32.5%) were had average level of memory, 7 (17.5%) were had excellent memory, none of them had below average, or low level of memory.

Table 4: Frequency and percentage of pre test and post test level of cognition among older people.

n=40

Level of cognition	Pre-test		Post test		χ^2
	f	%	f	%	
Low level memory	0	0.0%	0	0.0%	
Below average	8	20.0%	0	0.0%	
Average	32	80.0%	13	32.5%	**χ^2=32.45**
Above average	0	0.0%	20	50.0%	**P=0.001***(S)**
Excellent	0	0.0%	7	17.5%	
Total	**40**	**100.0%**	**40**	**100.0%**	

The above table 4 shows that the effect of neuro psychological rehabilitation on cognition among older people in pre test and post test level of cognition

In the Pre test, majority of them 32 (80%) were had average level of memory, 8 (20.0%) below average level of memory, none of them had above average, or excellent, or low level of memory. In the post test level of cognition among older people. In the Post test, majority of them 20 (50.0%) were had above average level of memory, 13 (32.5%) were had average level of memory, 7 (17.5%) were had excellent memory, none of them had below average, or low level of memory.

Pre test and post test level of cognition among older people

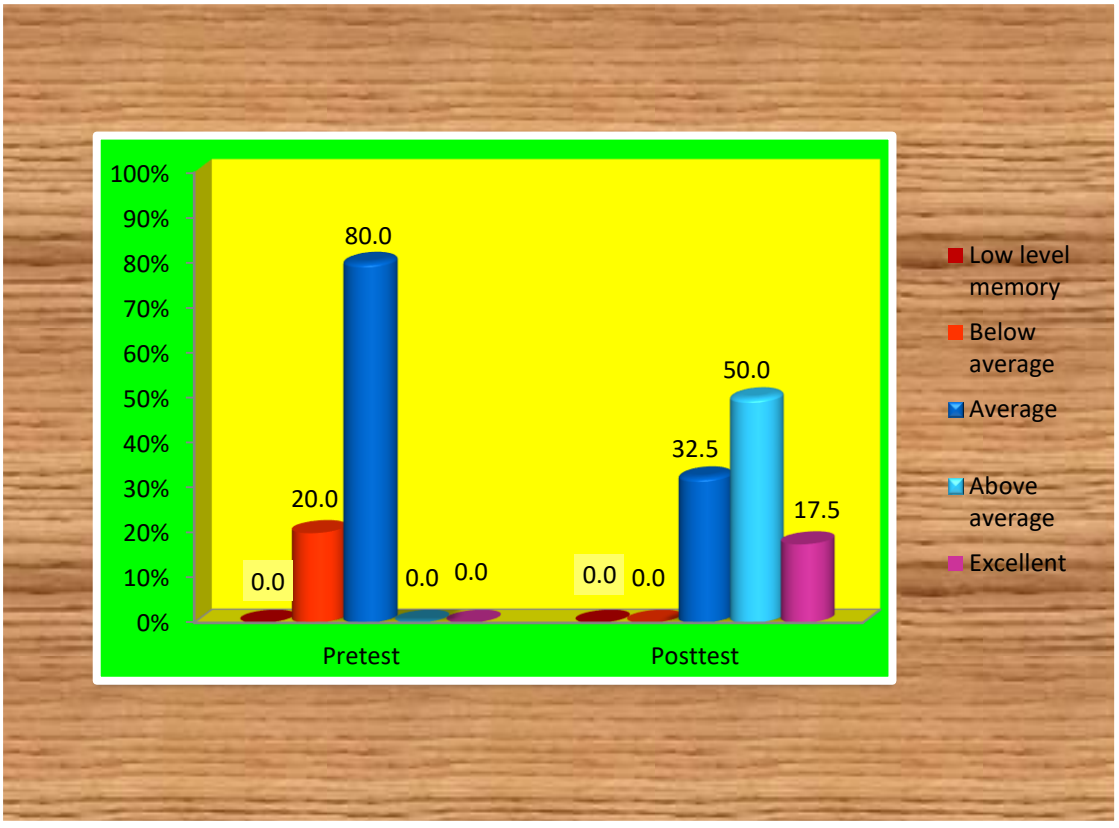


Figure 15: Cylinder diagram shows that distribution of pre test and post test level of cognition among older people.

In the Pre test, majority of them 32 (80%) were had average level of memory, 8 (20.0%) below average level of memory, none of them had above average, or excellent, or low level of memory. In the post test level of cognition among older people. In the Post test, majority of them 20 (50.0%) were had above average level of memory, 13 (32.5%) were had average level of memory, 7 (17.5%) were had excellent memory, none of them had below average, or low level of memory

Table 5: Pre test level of cognition among older people according to their domain

S.no	Domains	Score	Mean	SD	% of Mean
1	**Remote memory**	7	4.05	2.01	57.86
2	**Recent memory**	5	2.95	1.15	59.00
3	**Mental balance**	9	4.48	1.60	49.78
4	**Attention, concentration**	28	7.43	1.63	26.54
5	**Delayed memory**	10	4.63	1.03	46.36
6	**Immediate Recall**	12	4.82	1.01	40.17
7	**Verbal Retention similar pairs**	5	2.85	1.21	57.00
8	**Verbal Retention dissimilar pairs**	15	4.13	0.97	27.53
9	**Visual retention**	13	4.63	1.71	35.62
10	**Recognition**	10	4.78	1.14	47.80
	Total	**114**	**44.75**	**13.46**	**39.24**

Table 5 shows that pre test level of cognition among older people according to their domain.

In remote memory, the mean score was 4.05 with SD 2.01(57.86% of mean) whereas in recent memory, the mean score was 2.95 with SD 1.15 (59.00% of mean).

In mental balance, the mean score was 4.48 with SD 1.60 (49.78% of mean) whereas in attention concentration, the mean score was 7.43 with SD 1.63 (26.54% of mean).

In delayed memory, the mean score was 4.63 with SD 1.03 (46.36% of mean) whereas in immediate recall, the mean score was 4.82 with SD 1.01 (40.17% of mean).

In verbal retention similar pairs, the mean score was 2.85 with SD 1.21(57.00% of mean) whereas in verbal retention dissimilar pairs, the mean score was 4.13 with SD 0.97 (27.53% of mean).

In visual retention, the mean score was 4.63 with SD 1.71 (35.62% of mean) whereas in recognition the mean score was 4.78 with SD 1.14 (47.80% of mean).

Table : 6 Post test level of cognition among older people according to their domain

S.NO	Domains	Score	Mean	SD	% of Mean
1	**Remote memory**	7	5.33	0.83	76.14%
2	**Recent memory**	5	3.70	0.52	74.00%
3	**Mental balance**	9	5.95	1.62	66.11%
4	**Attention, concentration**	28	12.70	2.56	45.36%
5	**Delayed memory**	10	7.52	0.93	75.20%
6	**Immediate Recall**	12	7.75	1.60	64.58%
7	**Verbal Retention similar pairs**	5	4.00	0.00	80.00%
8	**Verbal Retention dissimilar pairs**	15	8.73	2.71	58.20%
9	**Visual retention**	13	7.82	3.21	60.15%
10	**Recognition**	10	7.15	1.33	71.50%
	Total	**114**	**70.65**	**15.31**	**61.97%**

Table 6 shows that post test level of cognition among older people according to their domain.

In remote memory, the mean score was 5.33 with SD 0.83 (76.14% of mean) whereas in recent memory the mean score was 3.70 with SD 0.52 (74.00 % of mean).

In mental balance, the mean score was 5.95 with SD 1.62 (66.11% of mean) whereas in attention, concentration, the mean score was 12.70 with SD 2.56 (45.36% of mean).

In delayed memory, the mean score was 7.52 with SD 0.93(75.20% of mean), whereas in immediate recall, the mean score was 7.75 with SD 1.60 (64.58% of mean).

In verbal retention similar pairs, the mean score was 4.00 with SD 0.00 (80.00% of mean) whereas in verbal retention dissimilar pairs, the mean score was 8.73 with SD 2.71 (58.20% of mean).

In visual retention, the mean score was 7.82 with SD 3.21(60.15% of mean) whereas in recognition, the mean score was 7.15 with SD 1.33 (71.50% of mean).

Pre test and post test level of cognition according to their domain

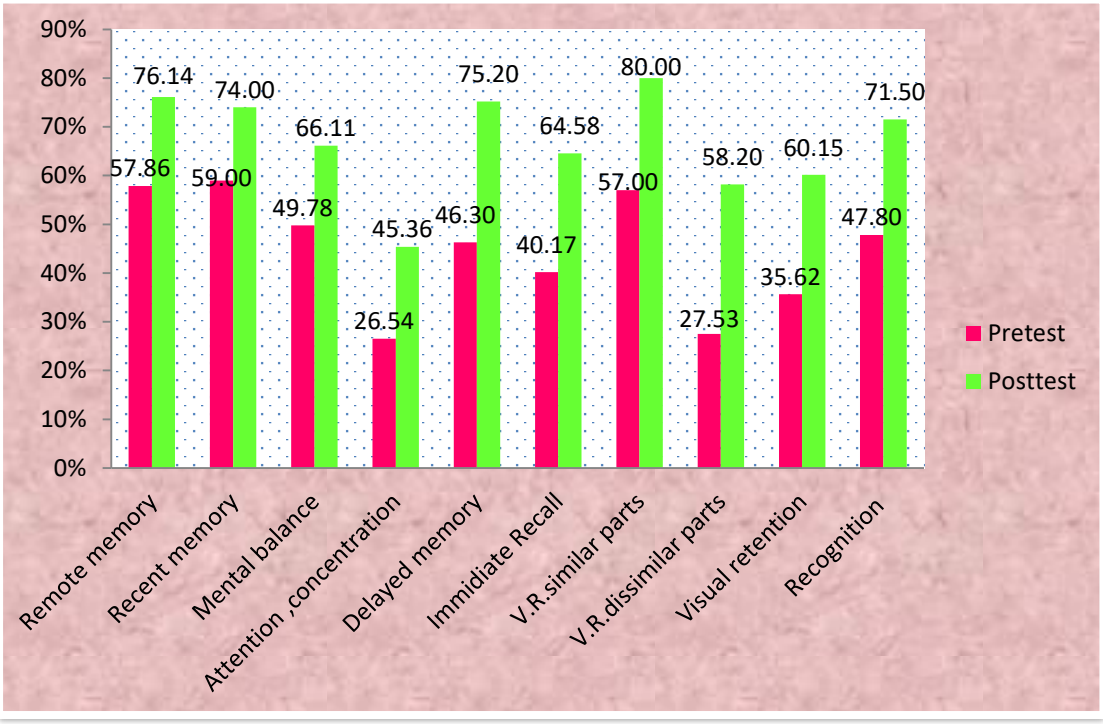


Figure 16: clustered column diagram reveals the distribution of pre test and post test level of cognition among older people according to their domain.

The above figure shows that pre test and post test level of cognition among older people according to their domain

In remote memory, the mean score was 4.05 with SD 2.01(57.86% of mean) whereas in recent memory, the mean score was 2.95 with SD 1.15 (59.00% of mean)

In mental balance, the mean score was 4.48 with SD 1.60 (49.78% of mean) whereas in attention, concentration, the mean score was 7.43 with SD 1.63 (26.54% of mean)

In delayed memory, the mean score was 4.63 with SD 1.03 (46.36% of mean) whereas in immediate recall, the mean score was 4.82 with SD 1.01 (40.17% of mean)

In verbal retention similar pairs, the mean score was 2.85 with SD 1.21(57.00% of mean) whereas in verbal retention dissimilar pairs, the mean score was 4.13 with SD 0.97 (27.53% of mean).

In visual retention, the mean score was 4.63 with SD 1.71 (35.62% of mean) whereas in recognition the mean score was 4.78 with SD 1.14 (47.80% of mean).

In post test remote memory, the mean score was 5.33 with SD 0.83 (76.14% of mean) whereas in recent memory, the mean score was 3.70 with SD 0.52 (74.00 % of mean).

In mental balance, the mean score was 5.95 with SD 1.62 (66.11% of mean) whereas in attention, concentration, the mean score was 12.70 with SD 2.56 (45.36% of mean).

In delayed memory, the mean score was 7.52 with SD 0.93 (75.20% of mean), whereas in immediate recall, the mean score was 7.75 with SD 1.60 (64.58% of mean).

In verbal retention similar pairs, the mean score was 4.00 with SD 0.00 (80.00% of mean) whereas in verbal retention dissimilar pairs, the mean score was 8.73 with SD 2.71 (58.20% of mean).

In visual retention, the mean score was 7.82 with SD 3.21(60.15% of mean) whereas in recognition, the mean score was 7.15 with SD 1.33 (71.50% of mean).

Table: 7 Effectiveness of neuro psychological rehabilitation on level of cognition among older people according to their domains.

S.no	Domains	Pre test mean %	Post test mean %	% of Mean Difference
1	**Remote memory**	57.86%	76.14%	18.28%
2	**Recent memory**	59.00%	74.00%	15.00%
3	**Mental balance**	49.78%	66.11%	16.33%
4	**Attention, concentration**	26.54%	45.36%	18.82%
5	**Delayed memory**	46.30%	75.20%	28.90%
6	**Immediate Recall**	40.17%	64.58%	24.41%
7	**Verbal Retention similar pairs**	57.00%	80.00%	23.00%
8	**Verbal Retention. dissimilar pairs**	27.53%	58.20%	30.67%
9	**Visual retention**	35.62%	60.15%	24.53%
10	**Recognition**	47.80%	71.50%	23.70%
	Total	**39.24%**	**61.97%**	**22.73%**

The above table 7 portrays the effectiveness of neuro psychological rehabilitation on level of cognition among older people according to their domains.

While describing the level of cognition among older people in pre test mean score was 27.53% and in post test 58.20% and the mean difference was 30.67% in verbal retention dissimilar pairs.

While stating the pre test mean score was 46.30% and in post test 75.20% and the mean difference was 28.90% in delayed memory.

In pre test mean score was 35.62% and in post test 60.15% and the mean difference was 24.53% in Visual Retention.

In pre test mean score was 40.17% and in post test 64.58% and the mean difference was 24.41% in immediate recall.

While describing in pre test mean score was 47.80% and in post test 71.50% and the mean difference was 23.70% in recognition.

In pre test the mean score was 57.00% and in post test 80.00% and the mean difference was 23.00% in Verbal Retention similar pairs.

While describing in pre test mean score was 26.54% and in post test 45.36% and the mean difference was 18.82% in attention concentration.

In pre test mean score was 57.86% and in post test 76.14% and the mean difference was 18.28% in remote memory

While stating in the pre test mean score was 49.78% and in post test 66.11% and the mean difference was 16.33% in mental balance.

In pre test mean score was 59.00%, and the post test mean score was 74.00% and the mean difference was 15.00% in recent memory.

Table 8: Comparison of pre test and post test mean cognition score among older people

Domains	Pre test		Post test		Mean Difference	Paired t-test
	Mean	SD	Mean	SD		
Remote memory	4.05	2.01	5.33	0.83	1.28	t=4.28 P<0.001*** (S)
Recent memory	2.95	1.15	3.70	0.52	0.75	t=4.13 P<0.001***(S)
Mental balance	4.48	1.60	5.95	1.62	1.47	t=5.88 P<0.001*** (S)
Attention, concentration	7.43	1.63	12.70	2.56	5.27	t=12.82 P<0.001*** (S)
Delayed memory	4.63	1.03	7.52	0.93	2.89	t=15.64 P<0.001*** (S)
Immediate Recall	4.82	1.01	7.75	1.60	2.93	t=10.51 P<0.001*** (S)
Verbal Retention similar pairs	2.85	1.21	4.00	0.00	1.15	t=6.01 P<0.001*** (S)
Verbal Retention dissimilar pairs	4.13	.97	8.73	2.71	4.60	t=10.10 P<0.001*** (S)
Visual retention	4.63	1.71	7.82	3.21	3.19	t=7.39 P<0.001*** (S)
Recognition	4.78	1.14	7.15	1.33	2.37	t=10.52 P<0.001*** (S)
Total	**44.75**	**13.46**	**70.65**	**15.31**	**25.92**	**t=23.25 P<0.001*** (S)**

*** **Significant at 0.001**

The above table 8 shows the comparison of mean cognition score between pre test and post test among older people.

While describing remote memory, the pre test mean score was 4.05 with SD 2.01, whereas the post test mean score was 5.33 with SD 0.83 and the mean difference 1.28 and the calculated ‘t’value 4.28 at 0.001 level.

In recent memory, the pre test mean score was 2.95 with SD 1.15, whereas the post test mean score was 3.70 with SD 0.52 and the mean difference 0.75 and the calculated ‘t’value 4.13 at 0.001 level.

While mentioning mental balance, the pre test mean score was 4.48 with SD 1.60, whereas the post test mean score was 5.95 with SD 1.62 and the mean difference 1.47 and the calculated ‘t’value 5.88 at 0.001 level.

In attention, concentration the pre test mean score was 7.43 with SD 1.63,whereas the post test mean score was 12.70 with SD 2.56 and the mean difference 5.27 and the calculated ‘t’value 12.82 at 0.001 level.

In delayed memory, the pre test mean score was 4.63 with SD 1.03, whereas the post test mean score was 7.52 with SD 0.93, and the mean difference 2.89 and the calculated ‘t’value 15.64 at 0.001 level.

In immediate recall, the pre test mean score was 4.82 with SD 1.01, whereas the post test mean score was 7.75 with SD 1.60 and the mean difference 2.93 and the calculated ‘t’value 10.51 at 0.001 level.

In Verbal Retention similar pairs, the pre test mean score was 2.85 with SD 1.21, whereas the post test mean score was 4.00 with SD 0.00 and the mean difference 1.15 and the calculated ‘t’value 6.01 at 0.001 level.

In Verbal Retention dissimilar pairs, the pre test mean score was 4.13 with SD 0.97, whereas the post test mean score was 8.73 with SD 2.71 and the mean difference 4.60 and the calculated ‘t’value 10.10 at 0.001 level.

In Visual retention, the pre test mean score was 4.63 with SD 1.71, whereas the post test mean score was 7.82 with SD 3.21 and the mean difference 3.19 and the calculated ‘t’value 7.39 at 0.001 level.

In recognition the pre test mean score 4.78 with SD 1.14, whereas the post test mean score was 7.15 with SD 1.33 and the mean difference 2.37 and the calculated ‘t’value 10.52 at 0.001 level .

The student paired “t” test was done to find out the difference between the pre test and post test score, in pre test older people are having 44.73 cognition score after intervention they are having 70.65 cognition score, so the mean difference is 25.92,this difference is statistically significant at p=0.001. It was confirmed using student paired t-test. This shows that the mean difference in the score was due to intervention (neuro psychological rehabilitation) and also this proves that the neuro psychological rehabilitation was effective in increasing among older people at selected old age home Madurai.

Comparison of pre test and post test level of cognition score among older people before and after neuro psychological rehabilitation

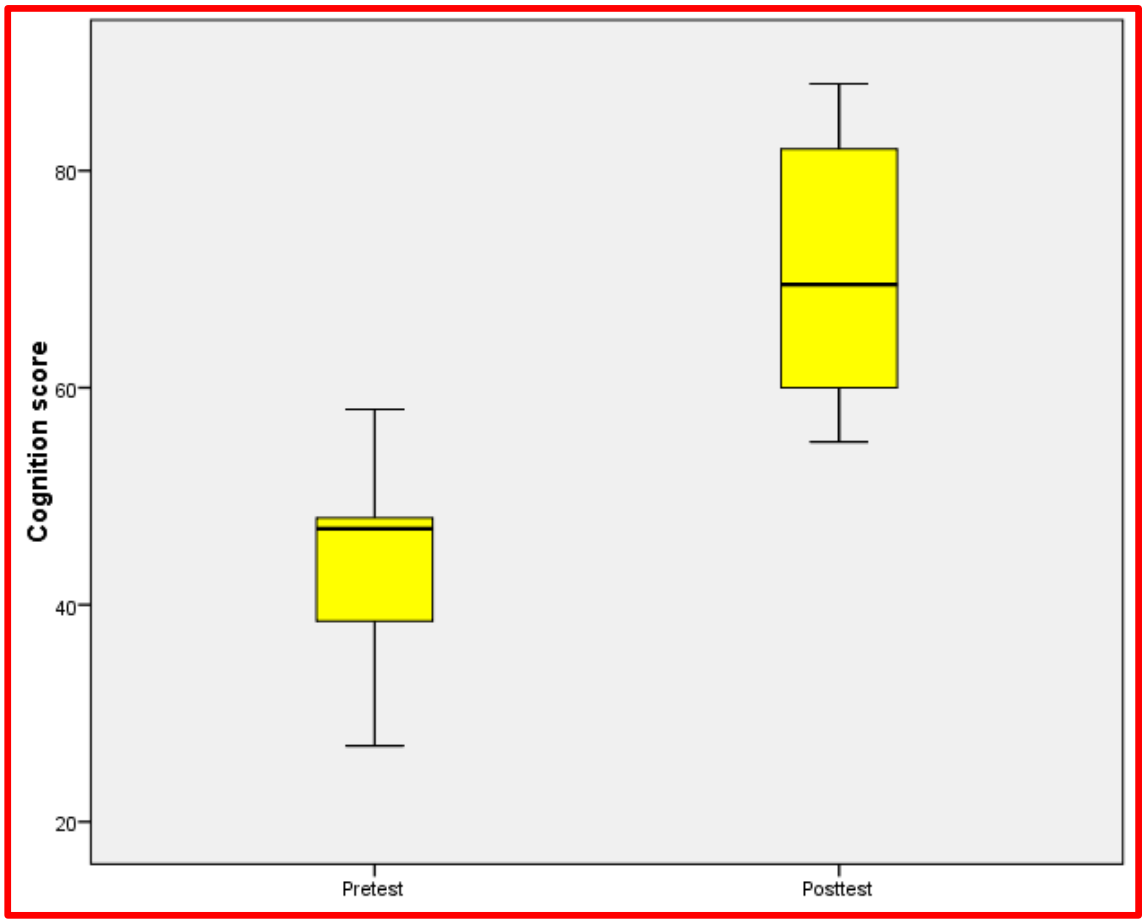


Figure 17: Box plot diagram portrays the mean cognition score between pre test and post test among older people.

The pre test mean cognition score was 44.75 with the standard deviation 13.46 whereas post test mean cognition score was 70.65 with the standard deviation 15.31. Mean difference was 25.92.

Section III

Association between the level of cognition among older people with their selected socio demographic variables.

Table 9

Association between the post test level of cognition among older people with their selected socio demographic variables.

n=40

Socio demographic variables		Post test level of cognition						n	χ^2
		Average		Above average		Excellent			
		f	%	f	%	f	%		
Age	1. 60-65yrs	3	16.7%	10	55.5%	5	27.8%	18	**χ^2=12.30 P=0.01**(S)**
	2. 66-70yrs	4	26.6%	9	60.1%	2	13.3%	15	
	3. Above 70yrs	6	85.7%	1	14.3%	0	0.0%	7	
Sex	1. Male	4	28.6%	10	71.4%	0	0.00%	14	**χ^2=5.89 P=0.05*(S)**
	2. Female	9	34.6%	10	38.5%	7	26.9%	26	
Religion	1. Hindu	8	50.0%	4	37.5%	2	12.5%	14	χ^2=3.72 P=0.15(NS)
	2. Christian	5	20.8%	16	58.4%	5	20.8%	26	
	3. Muslim	0	0.0%	0	0.0%	0	0.0%	0	
	4. Others	0	0.0%	0	0.0%	0	0.0%	0	
Educational status	1. No formal education	5	55.6%	4	44.4%	0	0.0%	9	**χ^2=16.41 P=0.01(S)**
	2. Primary Education	8	50.0%	6	37.5%	2	12.5%	16	
	3. High school education	0	0.0%	3	100.%	0	0.0%	3	
	4. Higher secondary Education	0	0.0%	7	58.3%	5	41.7%	12	
Previous occupational status	1. Government employee	0	0.0%	0	0.0%	0	0.0%	0	χ^2=2.69 P=0.85(NS)
	2. Private employee	2	33.3%	3	50.0%	1	16.7%	6	
	3. Self employee	0	0.0%	2	66.7%	1	33.3%	3	
	4. Daily wages	9	37.5%	12	50.0%	3	12.5%	24	
	5. Unemployed	2	28.6%	3	42.8%	2	28.6%	7	

Previous income per month	1. Rs.1000-5000	9	39.1%	10	43.5%	4	17.4%	23	$\chi 2=4.99$ P=0.75(NS)
	2. Rs.5001-10,000	1	25.0%	2	50.0%	1	25.0%	4	
	3. Rs.10,001 - 15,000	0	0.0%	3	100.0%	0	0.0%	3	
	4. Rs.15001-20000	1	33.3%	2	66.7%	0	0.0%	3	
	5. No income	2	28.6%	3	42.8%	2	28.6%	7	
Present source of income per month	1. From home	11	36.7%	16	53.3%	3	10.0%	30	$\chi 2=6.10$ P=0.19(NS)
	2. From government	2	33.3%	2	33.3%	2	33.3%	6	
	3. From relatives	0	0.0%	2	50.0%	2	50.0%	4	
Duration of stay in home	1. < 1 year	0	0.0%	2	28.6%	5	71.4%	7	**$\chi 2=17.78$ P=0.02*(S)**
	2. 1-5yrs	7	38.9%	9	50.0%	2	11.1%	18	
	3. 6-10yrs	2	22.2%	7	77.8%	0	0.0%	9	
	4. 11-15yrs	2	50.0%	2	50.0%	0	0.0%	4	
	5. 16-20yrs	2	100.0%	0	0.0%	0	0.0%	2	
Marital status	1. Married	12	34.3%	16	45.7%	7	20.0%	35	$\chi 2=2.30$ P=0.31(NS)
	2. Unmarried	1	20.0%	4	80.0%	0	0.0%	5	
	3. Divorced	0	0.0%	0	0.0%	0	0.0%	0	
	4. Separated	0	0.0%	0	0.0%	0	0.0%	0	
Health status	1. Healthy	13	32.5%	20	50.0%	7	17.5%	40	$\chi 2=0.00$ P=1.00(NS)
	2. Unhealthy	0	0.0%	0	0.0%	0	0.0%	0	
Type of food	1. Vegetarian	0	0.0%	3	75.0%	1	25.0%	4	$\chi 2=2.14$ P=0.34(NS)
	2. Non vegetarian	13	36.1%	17	47.2%	6	16.7%	36	

*** significant at- P<0.05, **significant at- P<0.01, *** significant at-p<0.0001.**

The above table 9 reveals the association between the post test level of cognition and their selected socio demographic variables.

In order to find out the association between the post test scores of cognition and selected socio demographic variables, Chi square analysis reveals that there was a significant association between the level of cognition and their selected socio demographic variables such as age group between 60-65 years **(χ2=12.30 P=0.01),** females **(χ2=5.89 P=0.05),** primary educated people **(χ2=16.41 P=0.01),** short duration of stay in home **(χ2=17.78P=0.02).** No other variable was not significantly associated with cognition level of older people.

Association between post test level of cognition and age

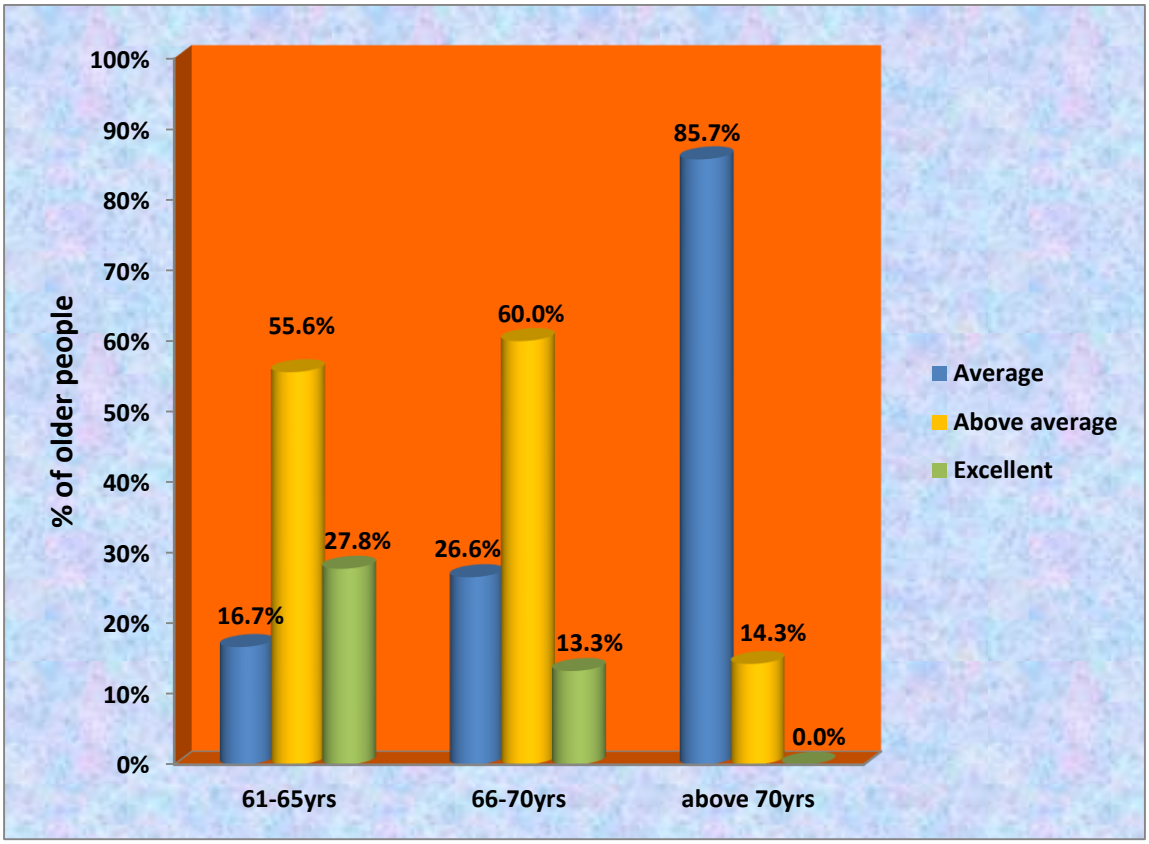


Figure 18: Clustered cylinder diagram depicts association between the level of cognition among older people according to their age.

The above figure depicts an association between the level of cognition among older people and their selected socio demographic variables. According to the age of older people, the age group between 60-65 years were gained more cognition level than the other age groups.

Association between post test level of cognition and sex

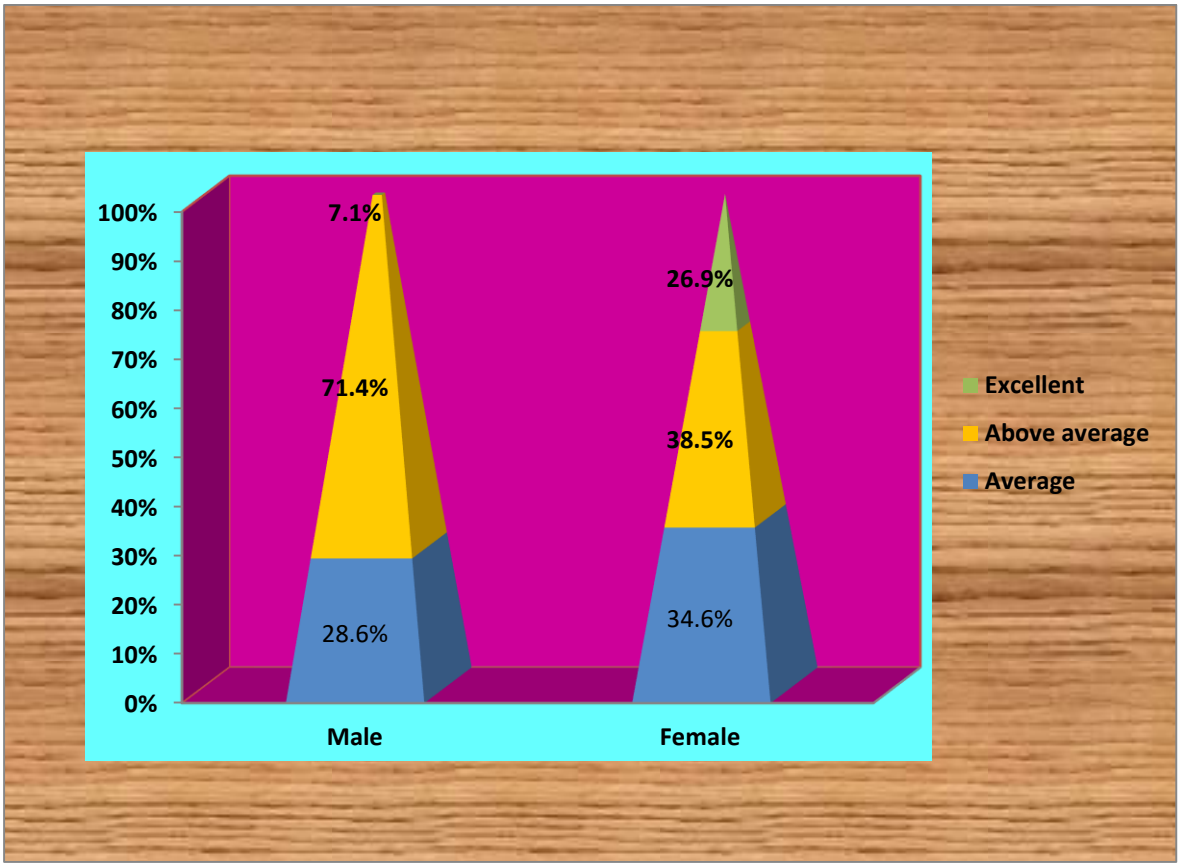


Figure19: pyramid diagram showing association between the level of cognition among older people according to their sex distribution.

The above figure depicts the association between the level of cognition among older people and their selected socio demographic variables. According to the sex of older people females were gained more cognition level than the males.

Association between post test level of cognition and educational status

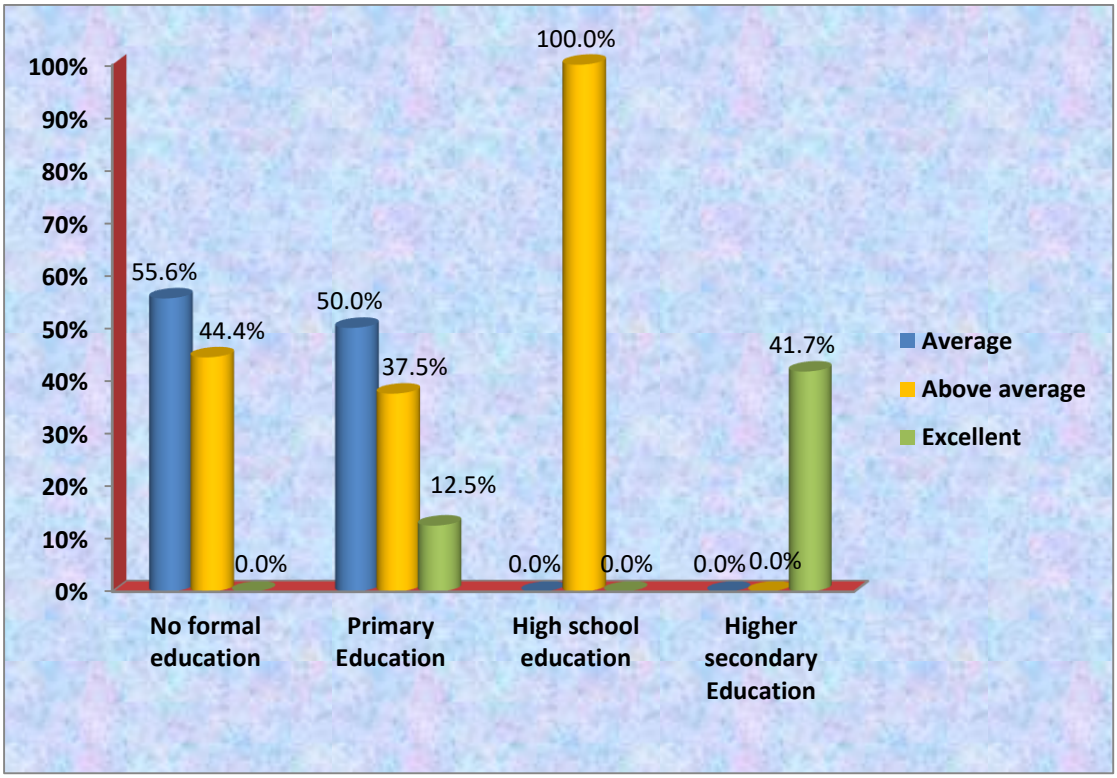


Figure 20: Multiple bar diagram showing association between the level of cognition among older people according to their educational status

The above figure depicts the association between the level of cognition among older people and their selected socio demographic variables. According to the educational status more educated older people were gained more cognition level than other type of educational status.

Association between post test level of cognition and duration of stay home

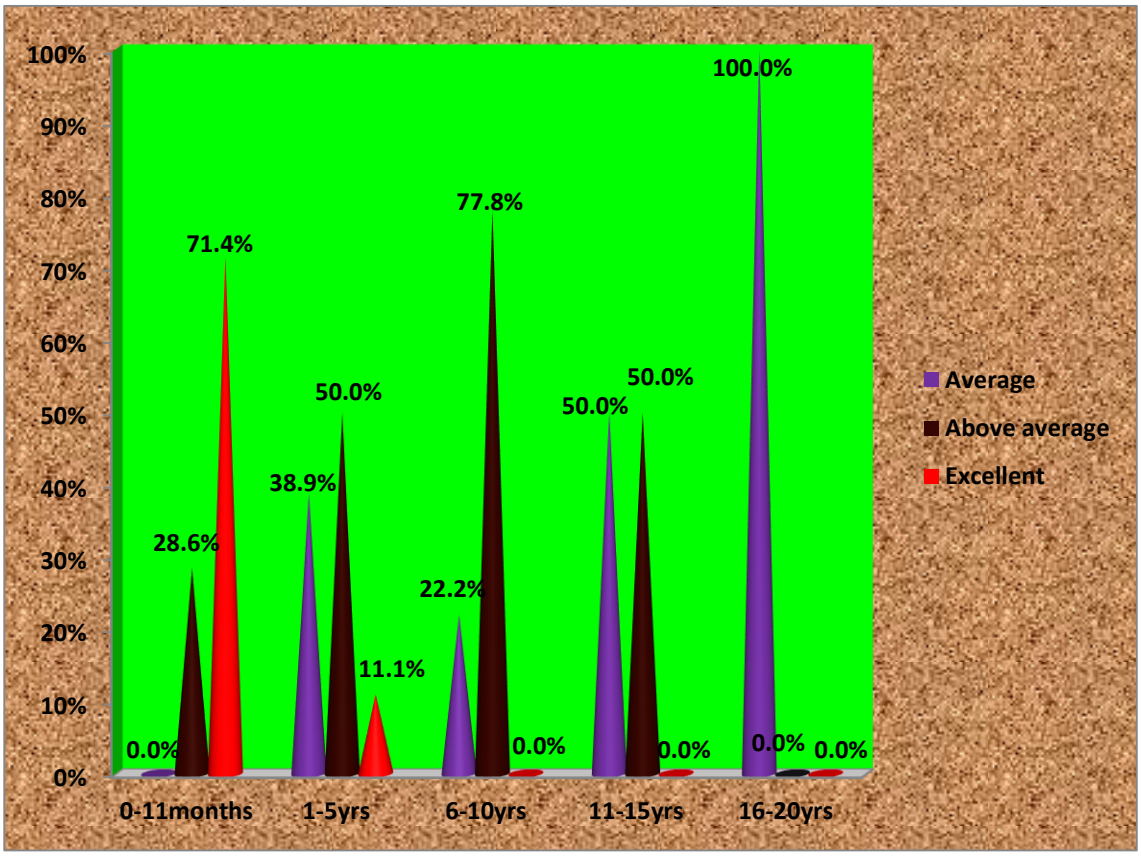


Figure 21: Clustered cone diagram showing association between the level of cognition among older people according to their duration of stay in home.

The above figure depicts the association between the level of cognition among older people and their selected socio demographic variables. According to the duration of stay in home those who were stay in the home in shorter duration gained more cognition level than other older people in the home.

DISCUSSION

CHAPTER V

DISCUSSION

This chapter discussed about the result of the study interpreted from the statistical analysis. Neuro psychological rehabilitation was originally developed as a way of improving level of cognition. This leads to a improve the cognition and then decrease the memory impairment. Neuro psychological rehabilitation can help to improve the memory and individual well being of day to day life. Neuro psychological rehabilitation techniques have been investigated for its potential benefit for individual who is experienced by memory impairment. It is very useful in improving cognition in older people.

The effort of this study was to evaluate the effectiveness of Neuro psychological rehabilitation on cognition among older people at selected old age home, Madurai. 40 samples were selected by non probability (purposive) sampling technique. The cognition levels of subjects were assessed with standardized PGI MEMORY SCALE.

The objectives of the study were to

- To assess the level of cognition among older people at selected old age home Madurai.
- To evaluate the effectiveness of neuro psychological rehabilitation on level of cognition among older people at selected old age home, Madurai.
- To associate the level of cognition among older people at selected old age home, Madurai with their socio demographic variable

The following hypotheses were tested at 0.05 level of significance

H_1 - The mean post test level of cognition will be significantly higher than mean pre test level of cognition among older people at selected old age home in Madurai

H_2 - There is a significant association between the level of cognition among older people at selected old age home Madurai with their selected socio demographic variables.

The findings of the study were discussed under the following headings

- Description of older people according to their socio demographic variables
- Description of older people according to their level of cognition
- Association between the level of cognition among older people with their socio demographic variables

Aging is a natural process. As people become older the functioning and adaptability of the tissues and different organs decline and chances of suffering geriatric population are more. Cognitive change as a normal process of aging some cognitive abilities such as vocabulary, are resilient to brain aging and may even improve with age. Neuropsychological rehabilitation is considered to be the integral part of the management to train cognitive skills for the betterment of the academic performance.

5.1 Discussion based on the socio demographic variables among older people at selected old age home

It is interesting to note that while mentioning age majority, 18 (45.00%) were in the age group between 60 - 65 years.

Regarding sex most of the participants 26 (65.00%) were female.

With regards to religion in older people, majority 26 (65.00%) were Christian.

While discussing educational status, majority of the participants, 16 (40.00%) had primary education.

With respect of previous occupation majority of the 24 (60.00%) worked as daily wages.

When comparing the previous income per month, majority of 23 (57.50%) were earned between Rs.1000-5000.

As far as present source of income, majority of them 30 (75.00%) were received from old age home.

While considering duration of stay in old age home, majority of older people 18 (45.00%) were stayed between 1-5 years.

While stating the marital status, majority of participants 35 (87.50%) were married.

While mentioning the health status, all the participants 40 (100%) were had good health.

According the type of food, majority of participants 36 (90.00%) were non vegetarian.

5.2 Discussion of the study based on its objectives

The first objective of the study was to assess the level cognition among older people at selected old age home Madurai.

PGI memory scale was used to assess the level of cognition among 40 older people. In the pre test majority 32 (80.00%) were had average memory, 8(20.00%) were in below average memory and none of them had above average, or excellent, or low level of memory.

In pre test level of cognition among older people according to their domain. In remote memory, the mean score was 4.05 with SD 2.01(57.86% of mean) whereas in recent memory, the mean score was 2.95 with SD 1.15 (59.00% of mean).

In mental balance, the mean score was 4.48 with SD 1.60 (49.78% of mean) whereas in attention concentration, the mean score was 7.43 with SD 1.63 (26.54% of mean).

In delayed memory, the mean score was 4.63 with SD 1.03 (46.36% of mean) whereas in immediate recall, the mean score was 4.82 with SD 1.01 (40.17% of mean).

In verbal retention similar pairs, the mean score was 2.85 with SD 1.21(57.00% of mean) whereas in verbal retention dissimilar pairs, the mean score was 4.13 with SD 0.97 (27.53% of mean).

In visual retention, the mean score was 4.63 with SD 1.71 (35.62% of mean) whereas in recognition the mean score was 4.78 with SD 1.14 (47.80% of mean).

The present study was supported by a study done by **Shimane, (2012)** conducted a cross sectional study on cognitive functioning at Japan Ohanan town. 356 male and 510 female was participated. Study shows 30% of participants were smokers, and 461(53.2) reported drinking alcohol around 30% of participants were physically active; 303 participants took medication for hypertension and 664 participants (76.7%) were drivers. p values less than 0.05 were considered statistically significant.

It was also supported by a study done by **Jessica, R et al., (2006)** did a study on disruption of large-scale brain systems in advanced aging in 93 adults aged 18 to 93 which demonstrated that aging is characterized by marked reductions in normally present functional correlations within two higher order brain systems. Anterior to posterior components within the default network were most severely disrupted with age. Instead, reduced correlations were associated with disruptions in white matter

integrity and poor cognitive decline is commonly observed in advanced aging even in the absence of disease**.**

The second objective of the study was to evaluate the effectiveness of neuro psychological rehabilitation on level of cognition among older people at selected old age home, Madurai.

The intervention neuro psychological rehabilitation on cognition construct a vast difference between the pre and post test scores obtained by the older people.

In the Pre test, majority of them 32 (80%) were had average level of memory, 8 (20.0%) below average level of memory, none of them had above average or excellent, or low level of memory. In the post test level of cognition among older people. In the Post test, majority of them 20 (50.0%) were had above average level of memory, 13 (32.5%) were had average level of memory, 7 (17.5%) were had excellent memory, none of them had below average, or low level of memory.

The effectiveness of neuro psychological rehabilitation on level of cognition among older people according to their domains.

While describing the level of cognition among older people in pre test mean score was 27.53% and in post test 58.20% and the mean difference was 30.67% in Verbal Retention dissimilar pairs.

While stating the pre test mean score was 46.30% and in post test 75.20% and the mean difference was 28.90% in delayed memory.

In pre test mean score was 35.62% and in post test 60.15% and the mean difference was 24.53% in Visual Retention.

In pre test mean score was 40.17% and in post test 64.58% and the mean difference was 24.41% in immediate recall.

While describing in pre test mean score was 47.80% and in post test 71.50% and the mean difference was 23.70% in recognition.

In pre test the mean score was 57.00% and in post test 80.00% and the mean difference was 23.00% in Verbal Retention similar pairs.

While describing in pre test mean score was 26.54% and in post test 45.36% and the mean difference was 18.82% in attention concentration.

In pre test mean score was 57.86% and in post test 76.14% and the mean difference was 18.28% in remote memory

While stating in the pre test mean score was 49.78% and in post test 66.11% and the mean difference was 16.33% in mental balance.

In pre test mean score was 59.00%, and the post test mean score was 74.00% and the mean difference was 15.00% in recent memory.

Comparison of mean cognition score between the pre test and post test.

While describing remote memory, the pre test mean score was 4.05 with SD 2.01, whereas the post test mean score was 5.33 with SD 0.83 and the mean difference 1.28 and the calculated ‘t’value 4.28 at 0.001 level.

In recent memory, the pre test mean score was 2.95 with SD 1.15, whereas the post test mean score was 3.70 with SD 0.52 and the mean difference 0.75 and the calculated ‘t’ value 4.13 at 0.001 level.

While mentioning mental balance, the pre test mean score was 4.48 with SD 1.60, whereas the post test mean score was 5.95 with SD 1.62 and the mean difference 1.47 and the calculated ‘t’value 5.88 at 0.001 level.

In attention, concentration the pre test mean score was 7.43 with SD 1.63,whereas the post test mean score was 12.70 with SD 2.56 and the mean difference 5.27 and the calculated ‘t’value 12.82 at 0.001 level.

In delayed memory, the pre test mean score was 4.63 with SD 1.03, whereas the post test mean score was 7.52 with SD 0.93, and the mean difference 2.89 and the calculated ‘t’value 15.64 at 0.001 level.

In immediate recall, the pre test mean score was 4.82 with SD 1.01, whereas the post test mean score was 7.75 with SD 1.60 and the mean difference 2.93 and the calculated ‘t’value 10.51 at 0.001 level.

In Verbal Retention similar pairs, the pre test mean score was 2.85 with SD 1.21, whereas the post test mean score was 4.00 with SD 0.00 and the mean difference 1.15 and the calculated ‘t’value 6.01 at 0.001 level.

In Verbal Retention dissimilar pairs, the pre test mean score was 4.13 with SD 0.97, whereas the post test mean score was 8.73 with SD 2.71 and the mean difference 4.60 and the calculated ‘t’value 10.10 at 0.001 level.

In Visual retention, the pre test mean score was 4.63 with SD 1.71, whereas the post test mean score was 7.82 with SD 3.21 and the mean difference 3.19 and the calculated ‘t’value 7.39 at 0.001 level.

In recognition the pre test mean score 4.78 with SD 1.14, whereas the post test mean score was 7.15 with SD 1.33 and the mean difference 2.37 and the calculated ‘t’value 10.52 at 0.001 level .

The student paired “t” test was done to find out the difference between the pre test and post test score, in pre test older people are having 44.73 cognition score after intervention they are having 70.65 cognition score ,so the mean difference is 25.92,this difference is statistically significant at p=0.001. It was confirmed using student paired t-test. This shows that the mean difference in the score was due to intervention (neuro psychological rehabilitation) and also this proves that the neuro psychological

rehabilitation was effective in increasing among older people at selected old age home Madurai.

This study revealed that there was a significant difference in the mean cognition scores between the pre test and post test .Paired "t" test also showed a significant difference between the pre test and post test. Distinction was due to the intervention, neuro psychological rehabilitation. Hence the neuro psychological rehabilitation intervention was effective in improving the level of cognition among older people.

The present study findings were supported by a study done by **Chang Fu, et al., (2018)** conducted a cross sectional study on cognitive function among Chinese elderly.8966 participants aged 60 and elderly are participated. Telephone interview of cognitive status, episodic memory and visuospatial abilities were assessed by questionnaire. This study reveals that doing volunteer were was associated with better cognitive function among women but not among men ($p<0.05$).

It was also supported by a study done by **Willis et.al**., **(2006)** conducted a randomized controlled single–blind study on neuro psychological rehabilitation in improving on cognition in older adults in US. 2832 persons was recruited. Ten sessions training for memory, orientation, reasoning, 4 sessions booster training at 11 and 35 months after training in a random sample of those who completed training. The reasoning group reported significantly less difficulty in the instrumental activities of daily living (IADL) than the control group (effect size, 0.29, 99% CI-0.002 to 0.51) nor memory training (effect size, 0.20, 99% CI-0.06 to 0.46) had a significant effect on IADL.

Hence the stated Hypotheses - H_1: The mean post test level of cognition will be significantly higher than mean pre test level of cognition among older people at selected old age home in Madurai was accepted.

The third objective of the study was to associate the level of cognition among older people at selected old age home, Madurai with their socio demographic variables.

In order to find out the association between the post test scores of cognition and their selected socio demographic variables, Chi square analysis reveals that there was a significant association between the level of cognition and their selected socio demographic variables such as age group between 60-65 years (**χ2=12.30,P<0.01),** females (**χ2=5.89,P=0.05**), more educated older people (**χ2=16.41 P=0.01**) and short duration of stay in home (**χ2=17.78 P=0.02)** among older people.

There was no significant association between the post test level of cognition and the other socio demographic variables such as religion, those who has previous occupation status, the older people who had a health status, marital status, previous income, type of food had lowered level of cognition in the post test.

Present study findings coincides with the findings of **Mridula. C.Jobson, Dr. R. Subhashini, (2016)** conducted a Pre and Post experimental design 20 children between age group 6 and 7 years participated. Pre and Post intervention assessment was done using PGI scale. Highly significant improvement was noted in cognitive skills retraining program postoperatively. Manualized Cognitive retraining started immediately postoperatively helps to improve cognitive skills in CHD children. This helps the Children to cope up with academics which develop positive approach of life.

The present study findings was supported by a study done by **Beyza Akdag, (2013)** did a study affecting cognitive function in older adults 377 older adults are participated in this study and were examined mean age (74.1+-6.15 years) The Hodkinson Abbreviated Mental Test (HAMT) tool was used to measure cognitive function. The Centers for Disease Control (CDC) Health Related Quality of life survey

tool used to measure the quality of life. Cognitive rehabilitation including cognitive training is an effective intervention for improving performance and satisfaction

Hence the stated hypotheses - H_2 : There is a significant association between the level of cognition among older people at selected old age home Madurai with their selected socio demographic variables was accepted.

The results of present study involve that adding a complimentary therapy (Neuro psychological rehabilitation) has contributed more benefits which in turn improve the cognition level among older people. Participants gained knowledge, practice in their life well being of day to day life.

SUMMARY AND CONCLUSION, IMPLICATIONS & RECOMMENDATIONS

CHAPTER – VI
SUMMARY, CONCLUSION, IMPLICATIONS AND RECOMMENDATIONS

This chapter narrates the summary of the study and conclusion drawn. It also clarifies the limitations of the study, the implications for different areas like nursing education, nursing service administration, nursing practice, and nursing research. It provides the recommendations made based on the study.

6.1 Summary of the study

The present study was undertaken to evaluate the effectiveness of neuro psychological rehabilitation on cognition among older people at selected old age home, Madurai.

The objectives of the study were

- To assess the level of cognition among older people at selected old age home Madurai.
- To evaluate the effectiveness of neuro psychological rehabilitation on level of cognition among older people at selected old age home, Madurai.
- To associate the level of cognition among older people at selected old age home, Madurai with their socio demographic variables.

The following hypotheses was tested at 0.05 level of significance.

H_1 – The mean post test level of cognition will be significantly higher than mean pre test level of cognition among older people at selected old age home in Madurai

H_2 - There is a significant association between the level of cognition among older people at selected old age home Madurai with their selected socio demographic variables.

The study Assumption were

- Increase in age may cause decreased in level of cognition.
- Older people may differ in the level of cognition

The conceptual framework in this study was based on Imogene King Goals Attainment Theory 1981 which focus on participants needs were achieved with nursing action. A pre experimental pre test and post test design was used in this study. A sample of 40 older people who were residing in old age home, pasumalai. Madurai was selected by non probability (purposive) sampling method and cognition of older people assessed by PGI memory scale. After testing the validity and reliability of the tool a pilot study was conducted 5 non study subjects at sellur old age home Madurai, to find out the feasibility and practicability. The main study was started from 04.06.2018 to 13.07.2018. Neuro psychological rehabilitation was given 30 minutes daily in the morning and evening, 5 sessions per week up to 4 to 6 weeks. Totally 20 sessions. Based on the objectives and hypotheses the data were analyzed by using descriptive and inferential statistics.

The data collection tool consisted of two sections

Description of tool

TOOL I: (Socio demographic variables)

It has questions related to socio demographic variables includes age, sex, religion, education, previous occupation status, previous income/month, present source of income, duration of stay in the old age home, health status, marital status, type of food.

Tool II: PGI memory scale

Description of PGI Memory Scale:

1. Remote memory
2. Recent memory
3. Mental balance
4. Attention and Concentration
5. Delayed recall
6. Immediate recall
7. Verbal retention for similar pairs
8. Verbal retention for dissimilar pairs
9. Visual retention
10. Recognition

Scoring Interpretation

Section II: PGI Memory Scale a 10 item questionnaire, which were rated below**.** Scores are calculated by summing the scores for the given items. The scores of each respondent over the scales are then evaluated as per the severity rating index below.

80 – 100 = Excellent

60 – 80 = Above average

40 – 60 = Average

20 – 40 = Below average

0 – 20 = Low level memory

The content validity of the tool was obtained by giving the tool to five of the experts in the field of nursing, psychology, psychiatry, epidemiology and statistics.

6.2 Major findings of the study were

- It is interesting to note that while mentioning age among older people 18 (45.00%) were in the age group between 60 - 65 years.
- Regarding most of the participants, 26 (65.00%) were female.
- With regards to religion in older people, majority 26 (65.00%) were Christian.
- While discussing educational status, majority 16 (40.00%) had primary education.
- With respect of previous occupation majority of the participants 24 (60.00%) worked as daily wages.
- When comparing the previous income per month, majority 23 (57.50%) were earned between Rs.1000-5000.
- As far as present source of income, majority of them 30 (75.00%) were received from old age home.
- While considering duration of stay in old age home, majority of older people 18 (45.00%) were stayed between 1-5 years.
- While stating the marital status, majority of participants 35 (87.50%) were married.
- While mentioning the health status, all the participants 40 (100%) were had good health.
- According the type of food, majority of participants 36 (90.00%) were non vegetarian.
- In the Pre test, majority of them 32 (80%) were had average level of memory, 8 (20.0%) below average level of memory.
- In the Post test, majority of them 20 (50.0%) were had above average level of memory, 7 (17.5%) were had excellent memory.

- There was a highly significant difference in the mean scores between pre test and post test in relation to cognition among older people.
- In the post test mean score was 70.65 with SD 8.35 and the mean difference was 39.24%, significantly higher than the pre test mean score was 44.73with SD 11.44 and the mean difference was 61.97%.
- The effectiveness of neuro psychological rehabilitation on cognition among older people had benefited 22.73 more score than pre test score.
- In pre test, older people were having 44.73 cognition score after intervention they were having 70.65 score, so the difference was 25.92, this difference was statistically significant at 0.001 level. It was confirmed using student paired t-test.
- There was a significant association between the post test level of cognition and their socio demographic variables such as age group between 60-65 years **(χ2=12.30 P=0.01**),** females **(χ2=5.89 P=0.05*),** more educated older people **(χ2=16.41 P=0.01***),** short duration of stay in home **(χ2=17.78P=0.02*)** among older people at selected at old age home.

There was no significant association between the post test level of cognition and the other socio demographic variables such as religion, previous occupation status, the older people who had a health status, marital status, previous income, type of food had lowered level of cognition in the post test.

6.3 Conclusion

It is statistically evidenced that Neuro psychological rehabilitation was effective in improving the level of cognition among older people. It is cost effective complementary and non invasive therapy to improve the cognition level among older people.

6.4 Implications of the study

According to Tolima, (1995), the section of the research report that focuses on nursing implications usually includes specific suggestions for nursing practice, education, administration and nursing research that can be used in the following areas of profession.

Nursing practice

- The nurses can learn to use PGI Memory Scale among older people to assess their level of cognition.
- The study findings will create awareness among the older people about the importance of neuro psychological rehabilitation and to practice it in order to improving their level of cognition among older people.
- The nurses can understand the importance of neuro psychological rehabilitation and to practice in clinical and community settings for older people.
- The nurses those who work in geriatric ward can teach the benefits of neuro psychological rehabilitation to the older people for improve their level of cognition.

Nursing education

- Nursing educator encourage the student nurses to learn about the assessment of cognition by using PGI Memory scale and motivate them to practice in their clinical area.
- Teaching personnel's can arrange the demonstration of neuro psychological rehabilitation through various method of teaching with various A.V aids.
- Nursing educators can arrange health talk and it should be focused improving the cognition among older people.

Nursing administration

- Nursing Administrators can provide an opportunity for nurses to attend training programme on cognitive retraining or psychological rehabilitation training for their personal uses and use for clients in both community and hospital settings.
- Nurse administrator can conduct the in-service education or staff development programme for nurses on neuro psychological rehabilitation in order to improve the level of cognition among older people.

Nursing research

- The study findings will encourage, further research studies on effectiveness of neuro psychological rehabilitation on cognition among Alzheimer disease.
- Based on the same study, research can be conducted on the effectiveness of neuro psychological rehabilitation on improving cognition level among other psychiatric clients.
- The research study can be conducted with more session in a long duration.

6.5 Recommendations

Based on the findings of the study, the recommendations offered for future research will be

- A similar study can be conducted with larger sample size and in various other settings.
- A comparative study can be done to assess the effectiveness of neuro psychological rehabilitation and counseling among older people.
- A longitudinal study can be undertaken to see the long term effect of neuro psychological rehabilitation to improve the level of cognition.
- Hence the findings of the study could be generalized with caution and can be generalized only to the particular sample and not for all the older people

BIBLIOGRAPHY

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TEXT BOOKS

1. Ahuja Niraj. (2002). *A short text book of psychiatry*. (1st ed). New Delhi: Jaypee Publishers.
2. Brunner and Suddarth. (2010). *Text book of Medical Surgical Nursing.* (11th edition). New Delhi: Wolter Kluwer Publications.
3. Basavanthappa, B.T. (2009). *Nursing theories*. (2nd edition). New Delhi: Jaypee Brothers Publicatons.
4. Basavanthappa, B.T. (2009). *Medical Surgical Nursing*. (2nd edition). New Delhi: Jaypee Brothers Publicatons.
5. Basavanthappa, B.T. (2008). *Nursing research*. (1nd edition). New Delhi: Jaypee Brothers Publicatons.
6. Barabara, K. Timby. (2007). *Introductory Medical – Surgical Nursing.* London: Lippincott Williams & Wilkins Publications.
7. Barbara Schoen John. (2004). *Psychiatric Mental Health Nursing*. (4th ed). Philadelphia: Lippincott company.
8. Barker. (2003). *Psychiatric and mental health nursing*. (1st ed). London: Edward Arnold publishers.
9. David Semple. (2005*). Oxford Handbook of Psychiatry*. (1st ed). London: Oxford University Press.
10. Fontaine & Fletcher. (2009). *Mental Health Nursing*, (5th ed), New Delhi: Dorling Kindersley India Pvt. Ltd.
11. Frisch & Frisch. (2007). *Psychiatric Mental Health Nursing*. (3th ed). Haryana: Thomson Delmer Learning.

12. Gail W. Stuart. (2009). *Principles and practice of Psychiatric Nursing.* (9th ed). New York: Mosby Publications.
13. Geri Lobiondo-Wood., & Judith Haber. (2006). *Nursing Research*. (6th ed). St. Louis: Mosby Publications.
14. Gertrude, K., & Mcfarland Mary Durand. (2001). *Psychiatric Mental Health Nursing* (5th ed). Philadelphia: Lippincott company.
15. Kothari C.R. (2001). *Research Methodology: Methods and Techniques*. (2nd ed). New Delhi: VishwaPrakash Publishers.
16. Lalitha, K. (2009). *Mental Health Psychiatric Nursing*. (1st ed). Bangaluru: VMJ Book House.
17. Lewis. (2008). *Basic concepts of Psychiatric Mental Health Nursing*. (7th ed). New Delhi: Williams & Wilkins Publication.
18. Mary Ann Boyd. (2008). *Psychiatric Nursing – Contemporary Practices*. (4th ed). New Delhi: Lippincott Williams & Wilkins.
19. Mary C. Townsend. (2007). *Psychiatric Mental Health Nursing*. (5th ed).
20. Michael Gelder. & Paul Harrison. (2006). *Shorter Oxford Textbook of Psychiatry*. (5th ed). New Delhi. Oxford University Press.
21. Nancy Burns., & Susan K Grove. (2007). *Understanding Nursing Research*. (4th ed). St.Louis: Saunders Publications.
22. Neeraja, K. P. (2008). *Essentials of Mental Health and Psychiatric Nursing*. (1st ed) New Delhi: Jaypee Publishers.
23. Norman, L. (2007). *Psychiatric Nursing*. (5th ed). Philadelphia: Mosby Publications.
24. Polit., Beck., & Hungler, P. (2001). *Essentials of Nursing Research*. (4th ed). Philadelphia: Lippincott Raven Publishers.

25. Rose Marie Linda. (2008). *Foundations of Nursing Research*. (5th ed). New Delhi: Pearson Prentice Hall.
26. Sheila L. Videbeck. (2008). *Psychiatric Mental Health Nursing*. (2nd ed). Philadelphia: Lippincott Williams & Wilkins.
27. Sreevani, R. (2007). *A Guide to Mental Health Nursing.* (2nd ed). New Delhi, & Kathy Goldberg. (2004).
28. Viyas J. N Ahuja. (2008). *Text Book of Postgraduate Psychiatry*. (2nd ed). New Delhi: s.: Jaypee Publications.
29. Tracy S.Diehl & Kathy Goldberg. (2004). *Psychiatric Nursing made incuribly* easy. Philadelphia: Lippincott Williams & wilkins.

Journal Refference

30. A.F., Kramer and K.I., Erickson. (2007). "*Capitalizing on cortical plasticity: influence of physical activity on cognition and brain function*" Trends in cognitive sciences: 12(11)342-348.
31. Ball.k. et.al., (2007). *cognitive intervention and aging .journals of gerontology*. 62 B(I)A: 19 -31.
32. Clare. L., (2003) *Cognitive training and cognitive rehabilitation for people with early-stage dementia.* Rev Clin Gerontol; 13:75-83.
33. Desmond. DW., (2004) *The neuropsychology of vascular cognitive impairment*: is there a specific cognitive deficit J Neuro Sci ; 226(06): 3–7.
34. Gaylene, Becker, PhD., Sharon Kaufman, PhD., (1988) *Old Age, Rehabilitation, and Research: A Review of the Issues* 28 (4) 459-468
35. Henry. W., Mahncke, Bonnie. B., Connor. et al., (2006) *Memory enhancement in healthy older adults using a brain plasticity* – based on training programme 103(33)12523- 12528.

36. Indira Sharma, Jyoti Srivastava, Ashutosh kumar, Reet Sharma, (2018).*Cognitive rehabilitation therapy for older adults*: 133(04) 51-62.
37. Ian. A., Clark, Misun Kim, Eleanor A., Maguire. (2017). *Verbal impaired associated and the hippocampus*: The role of scenes 32(12):5-28
38. Kilmova B., Valis M., Kuca. K. (2017). *Cgnitive decline in normal aging and its prevention; a review on non pharmacological life style strategies* ; 24(12):903-910.
39. K.M., Volkers and E.J.A., Schercler. (2014*). Physical performance is associated with working memory in older people with mild to severe cognitive impairment*; 16(03) 10 pages.
40. Mazur-Mosiewicz. A., Carlson H.L., Hartwick. C., Dykeman. J. (2015). *Effectiveness of cognitive Rehabilitation following Epilepsy surgery*: 21(12) 517-526.
41. McDougall. S., (2012). Brain training in older adults: evidence of transfer to memory span performance and pseudo-Matthew effects. *Neuropsycholo Dev Cogn B Aging of Neuropsychological*. 19(1-2):195-221.
42. MANZINE, Patricia Regina and PAVARINI, Sofia Cristina Iost. (2009), Cognitive rehabilitation: Literature review based on levels of evidence. Dement. neuropsychological. vol.3, n.3, pno.248-255.
43. Ozioma. C., Okonkwo Ronald. A., Cohen John Gunstad Geofferey, Tremont Micheal. L., Alosco, Athena Poppas. (2010*). Longitudinal Trajectories of Cognitive Decline among older Adults with cardio vascular diseases*: 09(06) 362-370.
44. Park. N.W., ingles. J.L. (2006). *Cognitive rehabilitation after Traumatic Brain Injury:* 12(05),67-74.

45. Rosti-Otajarvi. E.M., Hamalainen. P.I. (2014). *Neuropsychological rehabilitation effective in multiple sclerosis.;*13(3), 65-70
46. Ramu Haiharan. Ph.D., Dept of Economics. (2012). A study with special reference to the Madurai District: 32 (2) 1041-5718
47. Seyum Kim. Ph.D., (2015): *Cognitive rehabilitation for elderly people with early stage Alzheimer disease*.27(2):543-546
48. Vance. D.E., & Crowe. M. (2006). *A proposed model of neuroplasticity and cognitive reserve in older adults*. Activities, Adaptation and aging.30(3)61-79
49. Wood. K.M., et al., (2005) sensory and cognitive factors influencing functional ability in older adults. Gerontology, 51(2):131-141.

Net References

1. http//www./Agingtheory.org
2. http://en .wikipedia.org
3. http://www.jgmh.org.
4. http://dx.doi.org.
5. http://www.ncbi.nlm.nih.gov.
6. http://www.isec.ac.in.
7. http://www.theories of aging.com
8. http://WWW.prb.org.
9. http:// www.cognitive rehabilitation.org
10. http://www.neuro psychological rehabilitation.org
11. http:// www. Cognition.com
12. http:// www.benefits of neuro psychological rehabilitation.com
13. http**://** www.pgimemory scale.com
14. http://dx.doi.org/10.4172/scientificreports
15. 15.http://www.researchgate.net/pubilications

APPENDICES

APPENDIX I

ETHICAL COMMITTEE APPROVAL LETTER

MADURAI MEDICAL COLLEGE
MADURAI, TAMILNADU, INDIA -625 020
(Affiliated to The Tamilnadu Dr.MGR Medical University, Chennai, Tamil Nadu)

Prof Dr V Nagaraajan MD MNAMS DM (Neuro) DSc.,(Neurosciences) DSc (Hons)
Professor Emeritus in Neurosciences, Tamil Nadu Govt Dr MGR Medical University
Chairman, IEC

Dr.M.Shanthi, MD.,
Member Secretary,
Professor of Pharmacology,
Madurai Medical College, Madurai.

Members

1. Dr.V.Dhanalakshmi, MD, Professor of Microbiology & Vice Principal, Madurai Medical College
2. Dr.Sheela Mallika rani, M.D., Anaesthesia , Medical Superintendent Govt. Rajaji Hosptial, Maudrai
3. Dr.V.T.Premkumar,MD(General Medicine) Professor & HOD of Medicine, Madurai Medical & Govt. Rajaji Hospital, College, Madurai.
4. Dr.S.R.Dhamotharan, MS., Professor & H.O.D i/c, Surgery, Madurai Medical College & Govt. Rajaji Hosptial, Madurai.
5. Dr.G.Meenakumari, MD., Professor of Pathology, Madurai Medical College, Madurai
6. Mrs.Mercy Immaculate Rubalatha, M.A., B.Ed., Social worker, Gandhi Nagar, Madurai
7. Thiru.Pala.Ramasamy, B.A.,B.L., Advocate, Palam Station Road, Sellur.
8. Thiru.P.K.M.Chelliah, B.A., Businessman,21, Jawahar Street, Gandhi Nagar, Madurai.

ETHICS COMMITTEE CERTIFICATE

Name of the Candidate	:	S.Jeyasutha
Course	:	M.Sc., in Psychiatric Nursing
Period of Study	:	2016-2018
College	:	MADURAI MEDICAL COLLEGE
Research Topic	:	A study to evaluate the effectiveness of Neuro Psychological Rehabilitation on cognition among older people at selected old age home Madurai
Ethical Committee as on	:	13.04.18

The Ethics Committee, Madurai Medical College has decided to inform that your Research proposal is accepted.

Member Secretary Chairman Dean / Convenor

Prof Dr V Nagaraajan
M.D., MNAMS, D.M., Dsc.,(Neuro), Dsc (Hon)
CHAIRMAN
IEC - Madurai Medical College
Madurai

DEAN
Madurai Medical College
Madurai-20

16 MAY 2018

APPENDIX II

LETTER SEEKING PERMISSION FOR VALIDATION OF CONTENT AND TOOL

From

S.Jeyasutha

II Year M.Sc Nursing,

College of Nursing,

Madurai Medical college,

Madurai-20.

To

Mrs. Jansi M.Sc. (N), PhD,

Department of Psychiatric Nursing,

C.S.I College of Nursing,

Pasumalai, Madurai.

Through the proper channel,

Respected Madam,

Sub: Requesting to validate my tool and content –Reg

I am S.Jeyasutha studying II Year M.Sc (N) in College of Nursing, Madurai Medical College, Madurai-20. Here with I am sending my Tool and Content. Kindly validate my Tool and Content.

Thanking you,

Place: Madurai-20

Date: 25.5.2018

Yours faith fully,

(S.JEYASUTHA)

APPENDIX – III

CERTIFICATE FOR VALIDATION

This is to certify that the tool and content

SECTION – A : Socio demographic data

SECTION – B : Mini Mental Status Examination

SECTION – C : PGI Memory Scale

Prepared for data collection by Mrs.S.Jeyasutha II Year M.Sc (N) student, College of Nursing , Madurai Medical College, Madurai-20, who has undertaken the study field on thesis entitled **"A study to evaluate the effectiveness of neuro psychological rehabilitation on cognition among older people at selected old age home Madurai"** has been validated by me.

G. Gomathy
SIGNATURE OF THE EXPERT

Name: G. Gomathy

Designation:

Institution: PRINCIPAL
CHITHIRAI COLLEGE OF NURSING
MADURAI -9

Date:

CERTIFICATE FOR VALIDATION

This is to certify that the tool and content

SECTION – A : Socio demographic data

SECTION – B : Mini Mental Status Examination

SECTION – C : PGI Memory Scale

Prepared for data collection by Mrs.S.Jeyasutha II Year M.Sc (N) student, College of Nursing , Madurai Medical College, Madurai-20, who has undertaken the study field on thesis entitled **"A study to evaluate the effectiveness of neuro psychological rehabilitation on cognition among older people at selected old age home Madurai"** has been validated by me.

K. Sathi 23/5/18

SIGNATURE OF THE EXPERT

Name: K. SATHIYAKALA

Designation: READER IN NURSING DEPARTMENT OF PSYCHIATRIC NURSING

Institution: SRI MANAKULA VINAYAGAR NURSING COLLEGE PUDUCHERRY.

Date: 23/5/18.

CERTIFICATE FOR VALIDATION

This is to certify that the tool and content

SECTION – A : Socio demographic data

SECTION – B : Mini Mental Status Examination

SECTION – C : PGI Memory Scale

Prepared for data collection by Mrs.S.Jeyasutha II Year M.Sc (N) student, College of Nursing , Madurai Medical College, Madurai-20, who has undertaken the study field on thesis entitled **"A study to evaluate the effectiveness of neuro psychological rehabilitation on cognition among older people at selected old age home Madurai"** has been validated by me.

SIGNATURE OF THE EXPERT

Name: KAVITHA.R.R

Designation: Tutor,

Institution: College of Nursing JIPMER.

Date: 23/5/18

CERTIFICATE FOR VALIDATION

This is to certify that the tool and content

SECTION – A : Socio demographic data

SECTION – B : Mini Mental Status Examination

SECTION – C : PGI Memory Scale

Prepared for data collection by Mrs.S.Jeyasutha II Year M.Sc (N) student, College of Nursing , Madurai Medical College, Madurai-20, who has undertaken the study field on thesis entitled **"A study to evaluate the effectiveness of neuro psychological rehabilitation on cognition among older people at selected old age home Madurai"** has been validated by me.

R. Jancy Rachel Daisy

SIGNATURE OF THE EXPERT

Name: DR. R. JANCY RACHEL DAISY

Designation: PROFESSOR CUM HOD,
C.S.I. JEYARAJ ANNAPACKIAM
COLLEGE OF NURSING,
PASUMALAI, MADURAI.

Institution:

Date: 25.5.2018

CERTIFICATE FOR VALIDATION

This is to certify that the tool and content

SECTION – A : Socio demographic data

SECTION – B : Mini Mental Status Examination

SECTION – C : PGI Memory Scale

Prepared for data collection by Mrs.S.Jeyasutha II Year M.Sc (N) student , College of Nursing , Madurai Medical College, Madurai-20, who has undertaken the study field on thesis entitled **"A study to evaluate the effectiveness of neuro psychological rehabilitation on cognition among older people selected old age home at Madurai"** has been validated by me.

SIGNATURE OF THE EXPERT

Name: J. DEEPA, M.Sc(N),
Assistant Professor
Madurai Apollo College of Nursing
Elliyarpathy Village, Madurai - 22

Designation:

Institution:

Date:

CERTIFICATE FOR VALIDATION

This is to certify that the tool and content

SECTION – A : Socio demographic data

SECTION – B : PGI Memory Assessment Scale

Prepared for data collection by Mrs.S. Jeyasutha II Year M.Sc (N) student , College of Nursing , Madurai Medical College, Madurai-20, who has undertaken the study field on thesis entitled "**A study to evaluate the effectiveness of Neuro Psychological Rehabilitation on cognition among older people at selected old age home Madurai.** "has been validated by me.

SIGNATURE OF THE EXPERT

28.7.2018

Name: Dr. T. KUMANAN, M.D.(PSY).DPM
Reg. No. 42857
Professor of Psychiatry / Senior Civil Surgeon
Madurai Medical College / Govt. Rajaji Hospital
Madurai

Designation:

Institution

CERTIFICATE FOR VALIDATION

This is to certify that the tool and content

SECTION – A : Socio demographic data

SECTION – B : PGI Memory Assessment Scale

Prepared for data collection by Mrs.S. Jeyasutha II Year M.Sc (N) student , College of Nursing , Madurai Medical College, Madurai-20, who has undertaken the study field on thesis entitled "**A study to evaluate the effectiveness of Neuro Psychological Rehabilitation on cognition among older people at selected old age home Madurai.** "has been validated by me.

N. Suresh

SIGNATURE OF THE EXPERT

Name: N. SURESH KUMAR

N. SURESH KUMAR.
M.A., M.Phil.(Clin.Psy.)

Designation: Asst. Prof, Cum Clinical Psychologist
Dept. of Psychiatry
Govt. Rajaji Hospital, Madurai-20

Institution

APPENDIX – IV

INFORMED CONSENT FORM

NAME: DATE :

Here I am acknowledging that information regarding the project study topic was explain to me and the positive reason was pointed out. I am voluntarily willing to participate in the study. At any time I am free to exclude from the study and promised that my all personal information should be kept in confidential.

Signature of the participants

ஒப்புதல் அறிக்கை

பெயர்: தேதி:

எனக்கு இந்த ஆய்வைப் பற்றிய முழு விவரம் விளக்கமாக எடுத்துரைக்கப்பட்டது. இந்த ஆய்வில் பங்கு பெறுவதில் உள்ள நன்மைகள் மற்றும் தீமைகள் பற்றி நான் புரிந்துகொண்டேன். நான் இந்த ஆய்வில் தானாகவே முன் வந்து பங்கு பெறுகின்றேன். மேலும் எனக்கு இந்த ஆய்வில் இருந்து எந்த நேரமும் விலகிக் கொள்ள முழு அனுமதி வழங்கப்பட்டுள்ளது. என்னுடைய சிகிச்சை ஆவணங்களைப் பார்வையிட்டு அதில் உள்ள விவரங்களை ஆய்வில் பயன்படுதிக் கொள்ள அனுமதி அளிக்கின்றேன். என்னுடைய பெயர் மற்றும் அடையாளங்கள் ரகசியமாக வைத்துக் கொள்ளப்படும் என்றும் எனக்கு உறுதியளிக்கப்பட்டுள்ளது.

கையொப்பம்

APPENDIX – V

LETTER SEEKING AND GRANTING PERMISSION TO CONDUCT THE STUDY

From

S.Jeyasutha
II Year M.Sc. (N),
College of Nursing,
Madurai Medical College,
Madurai – 20.

To

The President,
Old age home,
Pasumalai,
Madurai.

Through, the proper channel,

Respected sir,

Sub: CON, MMC, Madurai II Year M.Sc. (N), Department of Psychiatric Nursing - Permission for conducting main study in old age home, inbaillam, pasumalai, Madurai – request regarding.

As per the curriculum recommended by the Indian Nursing Council and The Tamilnadu Dr.MGR Medical university of M.Sc. (N) candidates are required to conduct a dissertation study for the partial fulfillment of the course in their respective departments.

I wish to conduct a study topic on **"A study to evaluate the effectiveness of neuro psychological rehabilitation on cognition among older people at selected old age home Madurai"** for my dissertaion. I would like to conduct the main study in old age home, pasumalai, Maduai from 4th June onwards. I assure you that I will not interfere with the routine activities of the old age home.

Hence, I kindly request you to consider my requisition and permit me to conduct the study in your old age home.

Thanking you

Place: Madurai
Date: 18/05/2018

Yours Sincerely
S Jeya
(S. JEYASUTHA)

Dr. S. Rajamani 18/5/18

Forwarded S.P 18/5/18

To The warden permitted. 19/05/18.

APPENDIX – VI

Section-A

SOCIO DEMOGARPHIC PROFILE-ENGLISH

Sample No:

1.Age

1).60-65yrs

2).66-70yrs

3)above 70yrs

2. Sex

(1) Male

(2) Female

3. .Religion

(1) Hindu

(2) Christian

(3) Muslim

(4) Others

4 Educational status

(1) No formal education

(2) Primary Education

(3) High school education

(4) Higher secondary Education

5.Previous occupational status

(1) Government employee

(2) Private employee

(3) Self employee

(4) Daily wages

(5)Unemployed

6.**Previous Income per month**

(1) Rs.1000-5000 ☐

(2) Rs.5001-10,000

(3) Rs.10001 -15,000

(4) Rs.15001-20000

5) No income

7.**Present source of income per month** ☐

(1) From old age home

(2) From government (old age pension)

(3) From relatives

8.Duration of stay in home ☐

(1) < 1 year

(2) 1-5yrs

(3) 6-10yrs

(4) 11-15yrs

(5) 16-20yrs

9.Marital status ☐

(1) Married

(2) Unmarried

(3) Divorced

(4) Separated

10. Health status. ☐

(1) Healthy

(2) Unhealthy

11.Type of food ☐

(1) Vegetarian

(2) Non vegetarian

APPENDIX – VII

PGI MEMORY SCALE

PGI memory assessment tool

I. Remote Memory

1. How old are you?
2. Where were you born?
3. When were you married?
4. When did you start earning? ——————————————————————
5. When did you left study/pass high school? ——————————————
6. How old is your youngest child/brother/sister? ——————————————
7. When did you come first time in this clinic/department (Hospital)?--

II Recent Memory

1. What did you eat in your last dinner?
2. What did you eat this morning?
3. What is the name of this month
4. What day is today?
5. Who came to visit you or to whom you visited yesterday

III. Mental Balance

1. Recite A to Z (Alphabet of any language).
2. Count backward from 20 to 1
3. Count backward by minusing 3s starting from 40.

IV. Attention and Concentration

1. I am going to say some numbers. Listen them carefully, whenI read them, you will repeat them in the same order

5-7-3	4-1-7
5-3-8-7	6-1-5-8
1-6-4-9-5	2-9-7-6-3
3-4-1-7-9-6	6-1-5-8-3-9
7-2-5-9-4-8-3	4-7-1-5-3-8-6
4-7-2-9-1-6-8-5	9-2-8-8-3-1-7-4

2. I am going to read some numbers but you will be required to repeat them backward. For example, I say 2, 5 you will say 5, 2

8-5	2-8
4-3-7	8-5-1
8-5-6-3	3-7-5-9
4-7-2-9-1	9-2-5-8-4
2-5-9-4-8-3	7-1-5-3-9-6
3-5-8-6-1-9-2	6-3-7-1-4-8-5
8-5-2-3-6-1-9-4	2-8-4-5-9-7-1-3

V. Delayed Recall

I am going to read the Name of some objects listen carefully and when I asked you to repeat you will do so.

Umbrella
Flower
Clock
Picture
Pencil
Fish
Lamp
Rupee
Taj
Toy

VI. Immediate Recall

I am going to read a few small sentences one by one. Listen them carefully when I am through I would like you to tell me a whole sentence as precisely as you can.

1. Ram got up from the chair open the door and went to market
2. Patient was asked to lie down on the table, he was seen medicine was prescribed and was told to come next day.
3. Mohan did not have water in his house. He picked up the bucket went to street filled it up and return back

VII. Verbal retention

I am going to read to you a list of pairs Example two words at a time, listen carefully when I name one word of the pair you will tell the second word of the pair

1.	Tree	Flower
2.	Sweet	Sour
3.	Man	Women
4.	Day	Night
5.	Black	White

VIII. Verbal Retention for Dissimilar Pairs

Table – black
Tree-high
Lamp-un even
Child-bitter
Dream-deep

IX. Visual Retention

I am going to show you a card, see it carefully. After some time (15 seconds) I will take it away and when I ask you to memory on this paper draw (after 30 seconds) them, draw the things you saw in the card from your give a paper, a pencil and an erasure to the subject but do not instruct whether he can use the erasure or not).

X. Recognition

l am showing you a card containing pictures of many objects, see the whole card attentively (expose for 30 seconds). After some time (120 seconds inter a I will place before you another card. From this you will be required to identity and name the objects you saw in earlier card (Do not tell the subject the exact number of objects seen in first card and how many things he is yet to identify). Write the names given by the subject in the space given below

Scoring Criteria for Various Items of Recognition Sub-test X

Give a score of one for correct identification and correct naming of an item Give half score for correct identification but wrong naming of an item.

Few subjects sometimes use different names for a particular item. Correct names for each item of this sub-test are given below. Any name other than those given here and only the description of the item, should be regarded as incorrect However, if the exa that the response given by the subject is not markedly wrong. he-may give credit for that feels.

APPENDIX-VIII

SOCIO DEMOGRAPHIC DATA – TAMIL

சுயவிவரப்படிவம்

பிரிவு -அ

மாதிரிஎண்:

1. வயது

    அ) 60-65 வயது வரை

    ஆ) 66-70 வயது வரை

    இ) 70 க்கு மேல்

2. இனம்

    அ) பெண்

    ஆ)ஆண்

3. மதம்

    அ) இந்து

    ஆ) கிறிஸ்டியன்/ கிறிஸ்தவம்

    இ) முஸ்லீம்

    ஈ) மற்றவை

4. கல்வி தகுதி

    அ) மரபுசாராக் கல்வி

    ஆ)ஆரம்ப கல்வி

    இ)உயர்நிலை கல்வி

    ஈ)மேல்நிலை கல்வி

5. முந்தைய தொழில்

    அ) அரசு வேலை

    ஆ) தனியார் வேலை

    இ) சுயவேலை

    ஈ) கூலி

    உ) வேலையின்மை

6. மாத வருமானம்

அ) Rs. 1000-5000 வரை

ஆ) Rs 5001 to10,000 வரை

இ) Rs.10,001 to15,000 வரை

ஈ) Rs.15,001 -20,000 வரை

உ) வருமானம் இன்மை

7. தற்போதைய ஆதார வருமானம்

அ) முதியோர் இல்லத்திலிருந்து

ஆ) அரசு முதியோர் பென்ஷன் மூலம்

இ) உறவினர்கள் மூலம்

8. முதியோர் இல்லத்தில் தங்கியிருக்கும் கால அளவு

அ) 1 வருடத்திற்குள்

ஆ) 1 – 5 வருடம் வரை

இ) 6 - 10 வருடம் வரை

ஈ) 11 - 15 வருடம் வரை

உ) 16 - 20வருடம் வரை

9. திருமணத்தகுதி

அ) மணமானவர்

ஆ) மணமாகதவர்

இ) விவாகரத்து ஆனவர்

ஈ) பிரிந்துவாழ்பவர்

10. உடல்நல தகுதி

அ) நலம்

ஆ)நலமின்மை

11. உணவுப்பழக்கம்

அ) சைவம்

ஆ) அசைவம்

APPENDIX – IX

RESEARCH TOOL - TAMIL

பி ஜி ஐ நினைவுத்திறன் பரசோதனை கேள்வித்தாள்

1. நீளிடை நினைவுத்திறன்

1. உங்களின் வயது என்ன?
2. நீங்கள் எங்கு பிறந்தீர்கள்?
3. உங்களுக்கு எப்பொழுது திருமணம் ஆனது?
4. நீங்கள் எப்பொழுது சம்பாத்தியம் பண்ன ஆரம்பித்தீர்கள்?
5. நீங்கள் எப்பொழுது படிப்பை நிறுத்தினீர்கள் (அ) 10ம் வகுப்பு தேர்ச்சி பெற்றீர்கள்?
6. உங்களின் கடைசி குழந்தை, (அ) தம்பி (அ) சகோதரியின் வயது என்ன?

2. அண்மை நினைவுத்திறன்

1. நீங்கள் இதற்கு முந்தைய இரவு என்ன உணவு சாப்பிட்டீர்கள்?
2. இன்று காலை என்ன உணவு சாப்பிட்டீர்கள்?
3. இந்த மாதத்தின் பெயர் என்ன?
4. இன்று எனன கிழமை?
5. நேற்று உங்களை யாயராவது சந்தித்தார்களா அல்லது நீங்கள் யாரையாவது சந்தித்தீர்களா?

3. மனதால் இயக்கப்படுகிற நினைவுத்திறன்

1. A முதல் Z சொல்லுங்கள்
2. 20 முதல் 1 வரை பின்நோக்கி சொல்லுங்கள்
3. 100 லிருனந்து பின்நோக்கி மூன்று மூன்றாக கழித்து சொல்லுங்கள்

4. கவனம் மற்றும் ஒருமுகப்படுத்துதல்

1. நான் சில எண் வரியை சொல்லுவேன் அதை கூர்ந்து கவனித்து அதை அப்படியே வரிசைப்படி சொல்லவேண்டும்

5-7-3	4-1-7
5-3-8-7	6-1-5-8
1-6-4-9-5	2-9-7-6-3
3-4-1-7-9-6	6-1-5-8-3-9
7-2-5-9-4-8-3	4-7-1-5-3-8-6
4-7-2-9-1-6-8-5	9-2-8-8-3-1-7-4

2. நான் சில எண் வரியை சொல்லுவேன் ஆனால் நீங்கள் அதை பின்நோக்கி சொல்ல வேண்டும். (உ .ம்) நான் 2, 5 என்று சொன்னால் நீங்கள் 5, 2 என்று சொல்ல வேண்டும்.

8-5	2-8
4-3-7	8-5-1
8-5-6-3	3-7-5-9
4-7-2-9-1	9-2-5-8-4
2-5-9-4-8-3	7-1-5-3-9-6
3-5-8-6-1-9-2	6-3-7-1-4-8-5
8-5-2-3-6-1-9-4	2-8-4-5-9-7-1-3

5. காலதாமத நினைவுத்திறன்

நான் சில பொருட்களின் பெயர்களை சொல்லுவேன், அதை கவனித்து நான் கேட்கும்பொழுது திரும்ப சொல்லவேண்டும்.

குடை	மீன்
பூ	விளக்கு
கடிகாரம்	காசு
படம்	தாஜ்
பென்சில்	பொம்மை

6. உடனடி நினைவுத்திறன்

நான் சில வரிகளை ஒன்றன் பின் ஒன்றாக சொல்லுவேன் அதை கவனித்து நான் சொல்லும்பொழுது முழுவரியையும் உங்களால் முடிந்தவரை சொல்லவேண்டும்

1. ராம் நாற்காலியிலிருந்து எழுந்து, கதவை திறந்து சந்தைக்கு சென்றான்.
2. நோயாளி மேசையின் படுக்கபவைக்கப்பட்டு அவர் கவனிக்கப்பட்டு, மருந்து பரிந்துரைக்கப்பட்டு அடுத்த நாள் வரும்படி கூறப்பட்டது.
3. மோகனுடய வீட்டில் தண்ணீர் இல்லை, அவன் வாளியை எடுத்துக்கொண்டு கிணற்றிற்கு சென்று வாளியை நிரப்பிக்கொண்டு திரும்பிவந்தான்

7. ஓரின சொல் சார்ந்த நினைவுத்திறன்

நான் இப்பொழுது சில ஜோடி வார்த்தைகளை சொல்லுவேன், அதாவது இரண்டு வார்த்தைகளை ஒரநேரத்தில் சொல்லுவேன், நீங்கள் அதை கவனிக்கவேண்டும். பின்பு அந்த ஜோடியில் ஒரு வார்த்தையை நான் சொல்லுவேன் மற்றொன்றை நீங்கள் சொல்லவேண்டும்.

1. மரம் பூ
2. இனிப்பு புளிப்பு
3. ஆண் பெண்
4. பகல் இரவு
5. கருப்பு வெள்ளை

8. வேறுபட்ட சொல் சார்ந்த நினைவுத்திறன்

நான் இப்பொழுது சில மாறுபட்ட வார்த்தைகளை சொல்லுவேன், அதை கவனிக்கவேண்டும். பின்பு அந்த ஜோடியில் ஒரு வார்த்தையை நான் சொல்லுவேன் மற்றொன்றை நீங்கள் சொல்லவேண்டும்.

மேசை	கருப்பு	4	2	1			
மரம்	உயர்	2	1	5			
விளக்கு	சீரற்ற	1	5	3			
குழந்தை	கசப்பு	3	4	2			
கனவு	ஆழம்	5	3	4			

9. காட்சி சார்ந்த நினைவுத்திறன்

நான் ஒரு அட்டையை உங்களிடம் காண்பிப்பேன் அதை பார்க்கவேண்டும். சிறிதுநேரம் கழித்து அதை எடுத்து விடுவேன், பிறகு சிறிதுநேரம் கழித்து அதை வரையசொல்லுவேன். நீங்கள் அட்டையில் என்ன பார்த்தீர்களோ அதை உங்களால் முடிந்த வரை இந்த காகிதத்தில் வரையவேண்டும்.

10. அங்கீகரித்தல்

நான், நிறைய பொருட்களின் படகங்கள் அடங்கிய அட்டையை உங்களிடம் காண்பிப்பேன், அட்டை முழுவதையும் கூர்ந்து பார்க்டகவேண்டும். பின் சிறிதுநேரம் கழித்து உங்கள் முன் மற்றொரு அட்டையை வைப்பேன். முந்தைய அட்டையில் என்ன பார்த்தீர்களோ அதை அடையாளம் கண்டு அந்த பொருட்களின் பெயரை இதில் எழுதவேண்டும்.

APPENDIX – X

ENGLISH EDITING CERTIFICATE

TO WHOM SO EVER IT MAY CONCERN

This is to certify that the dissertation **"A STUDY TO EVALUATE THE EFFECTIVENESS OF NEUROPSYCOLOGICAL REHABILITATION ON COGNITION AMONG OLDER PEOPLE AT SELECTED OLD AGE HOME,MADURAI"** done by Mrs.S.Jeyasytha, M.Sc Nursing II year student, college of nursing, Madurai medical college,Madurai-20 has been edited for English language appropriateness.

Name: Dr. G. KARTHIGAISELVI.

Designation: Assistant Professor of English.

Institution: Mannar Thirumalai Naicker College.

G. Karthigaiselvi
Signature

Dr. G. KARTHIGAISELVI
Assistant Professor of English
Mannar Thirumalai Naicker College
Pasumalai
Madurai - 04

APPENDIX – XI

TAMIL EDITING CERTIFICATE

TO WHOM SO EVER IT MAY CONCERN

This is to certify that the dissertation "**A STUDY TO EVALUATE THE EFFECTIVENESS OF NEUROPSYCHOLOGICAL REHABILITATION ON COGNITION AMONG OLDER PEOPLE AT SELECTED OLD AGE HOME,MADURAI"** done by Mrs.S.Jeyasutha, M.Sc Nursing II year student, college of nursing, Madurai medical college,Madurai-20 has been edited for Tamil language appropriateness.

Name: T. PARIMALA

Designation: Asst. Professor

Institution: MTNC, Madurai.

Signature

30/7/18

முனைவர். தி.பரிமளா M.A., M.Phil., Ph.D.,
உதவிப் பேராசிரியர்
தமிழ்த்துறை (பயிற்சி)
மன்னர் திருமலை நாயக்கர் கல்லூரி (தன்னாட்சி)
பசுமலை, மதுரை-625 004

APPENDIX-XII

COLLEGE OF NURSING, MADURAI MEDICAL COLLEGE , MADURAI

NEURO PSYCHOLOGICAL REHABILITATION

ON

COGNITION

NEURO PSYCHOLOGICAL REHABILITATION -ENGLISH

INSTITUTION	:	COLLEGE OF NURSING, MADURAI MEDICAL COLLEGE.
PROGRAMME	:	II YEAR M.Sc (N)
SUBJECT	:	PSYCHIATRIC MENTAL HEALTH NURSING.
TOPIC	:	NEURO PSYCHOLOGICAL REHABILITATION
GROUP	:	OLDER PEOPLE
PLACE	:	OLD AGE HOME, PASUMALAI, MADURAI
DURATION	:	30 MINUTES MORNING AND EVENING
MEDIUM OF INSTRUCTION	:	TAMIL
METHOD OF TEACHING	:	LECTURE CUM DISCUSSION
TEACHING AID	:	FLASH CARDS

INTRODUCTION

"The past beats inside me like a second heart" but for some older people they couldn't feel that past beats due do to the degenerative process and they forgot past memories. So they older people suffer in day to day life. In this view the Researchers have done many studies and proved that some cognitive training techniques helps in improving the cognition in older age.. It promotes their skills to work at the highest level of independence possible for them. It also encourages them to rebuild self-esteem and a positive mood. As a researcher I have planned to teach some cognitive training techniques among older people to improve the cognition.

CENTRAL OBJECTIVE

Help the older people to acquire knowledge regarding neuro psychological rehabilitation and develop positive attitude and skills and apply this knowledge into practice in day to day life.

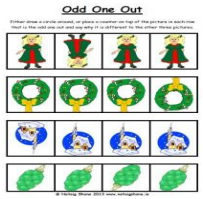
CONTRIBUTORY OBJECTIVES

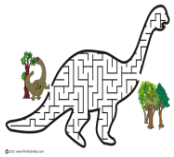
The older people will be able to

- Identify the meaning of neuro psychological rehabilitation
- Mention the need people of neuro psychological rehabilitation
- Enlist the types of neuro psychological rehabilitation
- Demonstrate the procedure for neuro psychological rehabilitation .
- Specify the benefits of neuro psychological rehabilitation
- Discuss the role of older people in neuro psychological rehabilitation

S. NO	TIME	SPECIFIC OBJECTIVES	CONDENT	RESEARCHER ACTIVITY	OLDER PEOPLE ACTIVITY	EVALUATION
1	3min	Identify the meaning of neuro psychological rehabilitation	**Meaning of neuro psychological rehabilitation:** Neuro Psychological Rehabilitation of sensory and cognitive function typically involves methods for retraining neural pathways or training new neural pathways to regain or improve neuro cognitive functioning that has been diminished by ageing.	Explain with flash cards	Listening and Observing	What is the Meaning rehabilitation?
2.	3mins	Mention the need people of neuro psychological rehabilitation	**Need for NPR:** ✓ Stroke ✓ Cerebral palsy ✓ Parkinson's disease ✓ Brain injury (axonal and traumatic brain injury) ✓ Post polio syndrome ✓ Guillain –barre syndrome	Explain with flash cards	Listening and Observing	What is stroke?

S. NO	TIME	SPECIFIC OBJECTIVES	CONDENT	RESEARCHER ACTIVITY	OLDER PEOPLE ACTIVITY	EVALUATION
2.	3mints	Mention the need people of neuro psychological rehabilitation	✓ Schizophrenia and schizotypal disorder ✓ ADHD ✓ Alzheimer's disease ✓ Older people	Explain with flash cards	observing and listening	What is Alzheimer's disease?
3	3mints	Enlist the types of neuro psychological rehabilitation	**Types of Neuro Psychological Rehabilitation:** ❖ Simple physical exercise(figure of eight) ❖ News paper reading ❖ Visual discrimination picture work sheet ❖ In tracing mazes ❖ In time lapse ❖ Number cancellation ❖ Visual memory task ❖ Word memory task	Explaining with flash cards	observing and listening	What is memory?

S. NO	TIME	SPECIFIC OBJECTIVES	CONDENT	RESEARCHER ACTIVITY	OLDER PEOPLE ACTIVITY	EVALUATION
4	30 mints	Demonstrate procedure of neuro psychological rehabilitation	**METHODS OF IMPROVING COGNITION** **Physical activity** **S**imple physical exercise like warm-up, walking in figure of eight for 15 minutes. It helps to increase the level of neuro transmitters serotonin, dopamine, endorphin **News paper and indian literature books reading** Reading a daily news paper for 15 minutes to listen and share common issues **Visual discrimination picture work sheet:** The work sheet contains pictures assembled in 4 pictures in one row with 4 columns. Ask the individual participants to observe and identity the different with the same picture.	Explaining with flash cards 	observing and listening	What is cognition? To strike out the different picture?

S. NO	TIME	SPECIFIC OBJECTIVES	CONDENT	RESEARCHER ACTIVITY	OLDER PEOPLE ACTIVITY	EVALUATION
4.	30 mints	Demonstrate procedure of neuro psychological rehabilitation	**In tracing mazes** Individual subjects were ask to play tracing mazes and complete the maze 5 minutes. **In time lapse** The work sheet contains **4**-6 visual analog clocks ask the participants to see and mark the exact time display in the clock. **Number cancellation task** Numbers from 0-9 are being displayed in an unorganized /jumbled manner in the work sheet. **A**sk the participants to strike out a specific number given by the researcher. **Visual memory task:** Allow the subjects to visualize 10 pictures in a sheet for 3 minutets and ask them to recollect the pictures what they had seen earlier.	Explaining with flash cards   2,8,5,6,4,0,1 5,7,3,2,8,0,1 6,8,0,4,2,7,1 	observing and listening	To help the dinosaur identify the way ? What is the time now? To strike out the no 5 in this table? Tell me the pictures name?

S. NO	TIME	SPECIFIC OBJECTIVES	CONDENT	RESEARCHER ACTIVITY	OLDER PEOPLE ACTIVITY	EVALUATION
4.	30 mints	Demonstrate procedure of neuro psychological rehabilitation	**Word memory task** Showing 15 name of the items list out by the researcher for 2 times ask the participants and allow 5 minutes to recollect the items already list out by the researcher.	Explaining with flash cards 1.ஆடு 2.மீன் 3.அலுவலகம்	observing and listening	Repeat the objects name?
5	10 mints	Specify the benefits of neuro psychological rehabilitation	**Benefits of neuro psychological rehabilitation** : ✓ Enhances problem solving skills. ✓ Improve the psychomotor function. ✓ It alleviates cognitive deficits. ✓ It reduces tension ✓ It improves sleep ✓ Improves individual ability. ✓ It helps to manage a family returning to work out side the home, ✓ It promotes level of performance.	Explaining with flash cards		What is tension? What is ability?

S. NO	TIME	SPECIFIC OBJECTIVES	CONDENT	RESEARCHER ACTIVITY	OLDER PEOPLE ACTIVITY	EVALUATION
5.	10 mints	Specify the benefits of neuro psychological rehabilitation	✓ It help to increase the level of neuro transmitters. ✓ It also encourages them to rebuild self-esteem and a positive mood. ✓ It improve attention and concentration. ✓ provide cognitive rehabilitation in life-changes that facilitate increased independence.	Explaining with flash cards	observing and listening	What is self esteem?
6	8mints	Discuss the role of older people in neuro psychological rehabilitation	**Role of older people in neuro psychological rehabilitation** 1. Older people co-operate with the researcher 2. Older people understand their own cognition level. 3. Older people understand benefits of neuro psychological rehabilitation technique.	Explaining with flash cards	observing and listening	

S. NO	TIME	SPECIFIC OBJECTIVES	CONDENT	RESEARCHER ACTIVITY	OLDER PEOPLE ACTIVITY	EVALUATION
6.	8 mints	Discuss the nurses role in neuro psychological rehabilitation	4. Older people should follow the neuro psychological technique in proper way. 5. Work Closely with researcher. 6. Older people sharing the information with other participants 7. Older people to know how to improve the cognition. 8. Older people should have self motivation and self interest. 9. Clarify the doubts with the researcher	Explaining with flash cards	Observing and listening	What is self motivation?

SUMMARY

Memory impairment is one of the most common problems in older people. We have discussed about neuro psychological rehabilitation meaning, need for people of neuro psychological rehabilitation, types ,methods and procedures, role of older people in neuro psychological rehabilitation.

REFERENCES

TEXT BOOKS

1. Ahuja Niraj. (2002). *A short text book of psychiatry*. (1st ED.). New Delhi: Jaypee Publishers.
2. Brunner and Suddarth. (2010). *Text book of Medical Surgical Nursing.* (11th edition). New Delhi: Wolter Kluwer Publications
3. Basavanthappa, B.T. (2009). *Nursing theories*. (2nd edition). New Delhi: Jaypee Brothers Publicatons.
4. Lalitha, K. (2009). *Mental Health Psychiatric Nursing*.(1st ED.).Bangaluru: VMJ Book House.
5. Lewis. (2008). *Basic concepts of Psychiatric Mental Health Nursing*.(7th ED.). New Delhi: Williams & Wilkins Publication.
6. Mary Ann Boyd. (2008). *Psychiatric Nursing – Contemporary Practices*.(4th ED.). New Delhi: Lippincott Williams & Wilkins.
7. Mary C. Townsend. (2007). *Psychiatric Mental Health Nursing*.(5th ED.).
8. Michael Gelder. & Paul Harrison. (2006). *Shorter Oxford Textbook of Psychiatry*. (5th ED.). New Delhi. Oxford University Press.
9. Nancy Burns.,& Susan K Grove. (2007). *Understanding Nursing Research*.(4th ED.). St.Louis: Saunders Publications.
10. Neeraja, K. P. (2008). *Essentials of Mental Health and Psychiatric Nursing*.(1st ED.) New Delhi: Jaypee Publishers.
11. Sreevani, R. (2007). *A Guide to Mental Health Nursing.* (2nd ED.). New Delhl., & Kathy Goldberg. (2004).
12. Viyas J. N Ahuja. (2008). *Text Book of Postgraduate Psychiatry*.(2nd ED.).New Delhi: s.: Jaypee Publications.

NET REFERENCES

1. http:// www.cognitive rehabilitation .org
2. http://www.neuro psychological rehabilitation .org
3. http:// www. Cognition.com
4. http:// www.benefits of neuro psychological rehabilitation .com
5. http://www.jgmh.org.
6. http://dx.doi.org.

APPENDIX-XIII

நரம்பு உளவியல் புனர்வாழ்வு- தமிழ்

தலைப்பு	:	நரம்பு உளவியல் புனர்வாழ்வு
குழு	:	மூத்த குடிமக்கள்
இடம்	:	இன்ப இல்லம், பசுமலை, மதுரை
நேரம்	:	முற்பகல் 30 நிமிடங்கள் / பிற்பகல 30 நிமிடங்கள்
பயிற்றுவிக்கும் மொழி	:	தமிழ்
கற்பிக்கும் முறை	:	நழுவம் மூலமாக
கற்பிக்க உதவும் சாதனம்	:	நழுவம்

அறிமுகம்

"கடந்து சென்ற நினைவுகளும் கூட இரண்டாவது இதயம் தான்" ஆனால் வயது முதிந்தவர்கள் பழைய நினைவுகளை இழந்து விடுகின்றனர். இதற்கு காரணம் மூளையின் சீரழிவு செயல்முறை தான் இதனால் வயது முதிந்தவர்கள் நாள்தோறும் தங்களின் வேலைகளை செய்வதற்கும் கூட கஷ்டப்படுகின்றனர். இதை வைத்து ஆராய்ச்சியாளர்கள் பல ஆய்வுகள் செய்துள்ளனர். அந்த ஆராய்ச்சியின் மூலம் அறிவாற்றலை மேம்படுத்துவதில் "அறிவாற்றல் நுட்ப பயிற்சி" உதவுகின்றன என்பதை நிரூபித்துள்ளனர். இந்த பயிற்சிகள் முதியவர்களுக்கு சுயமரியாதை மற்றும் நேர்மறையான மனநிலையை மீண்டும் கட்டமைக்க அவர்களை ஊக்குவிக்கிறது. ஒரு ஆராய்ச்சியாளராக நான் அறிவாற்றலை மேம்படுத்த முதியவர்கள் மத்தியில் சில அறிவாற்றல் பயிற்சி நுட்பங்கள் கற்பிக்க திட்டமிட்டுள்ளேன்.

மையநோக்கம்:

நரம்பு உளவியல் பயிற்சியின் மூலமாக முதியவர்களுக்கு அறிவை பெறுவதற்கும், நேர்மறை அணுகுமுறை மற்றும் திறமையை மேம்படுத்தவும் அந்த அறிவை தினசரி வாழ்வில் நடைமுறைபடுத்தவும் இந்த பயிற்சி உதவுகிறது.

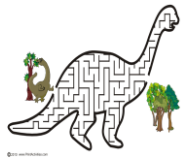
குறிப்பிட்ட நோக்கங்கள்:

1. நரம்பு உளவியல் புனர்வாழ்வு என்பதன் பொருள் காணல்
2. நரம்பு உளவியல் புனர்வாழ்வு பயற்சி யாருக்கு தேவைப்படுகின்றது என்பதை குறிப்பிடல்
3. நரம்பு உளவியல் புனர்வாழ்வு பயிற்சியின் வகைகள்
4. அறிவாற்றலை மேம்படுத்தும் செயல் விளக்க வழி முறைகள்
5. நரம்பு உளவியல் புனர் வாழ்வின் நன்மைகளை குறிப்பிடுதல்
6. நரம்பு உளவியல் புனர் வாழ்வில் முதியவர்களின் பங்கு பற்றி விவாதித்தல்

வ. எண்	நேரம்	குறிப்பிட்ட நோக்கம்	பொருளடக்கம்	ஆராய்ச்சியரின் செயல்பாடு	வயது முதியவர்களின் செயல்பாடு	வயது முதியவர்களின் செயல்பாடு மதிப்பீடு:
1.	3 நிமிடங்கள்	நரம்பு உளவியல் புனர்வாழ்வு என்பதன் பொருள் காணல்	**நரம்பு உளவியல் புனர்வாழ்வு என்பதன் பொருள்** நரம்பு உளவியல் புனர்வாழ்வு என்பது உணர்ச்சி மற்றும் அறிவாற்றல் செயல்பாடுகளின் நரம்பு வழிவகைகளை மறுபரிசீலனை செய்தும், புதிய நரம்பியல் பாதைகளை பயிற்சி செய்வதற்கும் குறைபட்டுக்கொண்டிருக்கும் நரம்பியல் அறிவாற்றல் செயல்பாடுகளை மீளமைக்க செய்வதே ஆகும்.	நழுவம் உதவியுடன் விளக்குதல்	கவனித்தல் மற்றும் கூர்ந்து கேட்டல்	புனர்வாழ்வு என்பதன் பொருள் என்ன?
2.	3 நிமிடங்கள்	நரம்பு உளவியல் புனர்வாழ்வு பயற்சி யாருக்கு தேவைப்படுகின்றது என்பதை குறிப்பிடல்	**நரம்பு உளவியல் புனர்வாழ்வு பயற்சி யாருக்கு தேவைப்படுகின்றது.** ✶ பக்கவாதம் ✶ பெருமூளைசேதம் ✶ நடுககு வாதம் நோய் ✶ மூளைக்காயம் ✶ இளம்பிள்ளைவாத நோயயிற்கு பின்வரும் நோய்க்குறிகள் ✶ தசைபலவினம் நோய்	நழுவம் உதவியுடன் விளக்குதல்	கவனித்தல் மற்றும் கூர்ந்து கேட்டல்	பக்கவாதம் என்றால் என்ன?

வ. எண்	நேரம்	குறிப்பிட்ட நோக்கம்	பொருளடக்கம்	ஆராய்ச்சியரின் செயல்பாடு	வயது முதியவர்களின் செயல்பாடு	வயது முதியவர்களின் செயல்பாடு மதிப்பீடு:
2.	3 நிமிடங்கள்	நரம்பு உளவியல் புனர்வாழ்வு பயற்சி யாருக்கு தேவைப்படுகின்றது	✶ மனச்சிதைவு ✶ முன் கழுத்து கழலை ✶ ஞாபக மறதி நோய் ✶ மூத்த குடிமக்கள	நழுவம் உதவியுடன் விளக்குதல	கவனித்தல் மற்றும் கூர்ந்து கேட்டல்	ஞாபக மறதி நோய் என்றால் என்ன?
3.	3 நிமிடங்கள்	நரம்பு உளவியல் புனர்வாழ்வு பயிற்சியின் வகைகள்	**நரம்பு உளவியல் புனர் வாழ்வின் வகைகள்** ✶ எளிய உடற்பயிற்சி ✶ செய்திதாள் வாசித்தல் ✶ காட்சி வேறுபாடு பணித்தாள் படம் ✶ வழி கண்டுபிடித்தல் திறன் ✶ நேரம் கணக்கிடுதல் ✶ எண்களை ரத்து செய்தல் ✶ காட்சி நினைவாற்றல் திறன் ✶ சொல் நினைவாற்றல் திறன்	நழுவம் உதவியுடன் விளக்குதல	கவனித்தல் மற்றும் கூர்ந்து கேட்டல்	நினைவகம் என்றால் என்ன?

வ. எண்	நேரம்	குறிப்பிட்ட நோக்கம்	பொருளடக்கம்	ஆராய்ச்சியரின் செயல்பாடு	வயது முதியவர்களின் செயல்பாடு	வயது முதியவர்களின் செயல்பாடு மதிப்பீடு:
4.	30 நிமிடங்கள்	அறிவாற்றலை மேம்படுத்தும் செயல் விளக்க வழி முறைகள்	**அறிவாற்றலை மேம்படுத்தும் செயல் விளக்க வழி முறைகள்:** **எளிய உடற்பயிற்சி:** தினமும் காலையில் 15 நிமிடங்கள் பயிற்சிக்கு தயராகுதல், நடைபயிற்சி, எளிய உடற்பயிற்சி செய்தல், 8 என்ற எண் வடிவத்தில் நடத்தல், இதன் மூலம் ஞாபக சக்தியை அதிகரிக்கும் மூளையின் இரசாயண வேதி கடத்திகளின் (செரோடோனின், டோபமைன், எண்டார்பின்) அளவை அதிகரிக்க உதவுகிறது. **செய்தித்தாள் வாசித்தல்:** தினமும் காலையில் 15 நிமிடங்கள் செய்திதாளை சத்தமாக படித்து பொதுவானவற்றை பகிர்ந்து கொள்ளுதல்.	நழுவம் உதவியுடன் விளக்குதல்	கவனித்தல் மற்றும் கூர்ந்து கேட்டல்	அறிவாற்றல் என்றால் என்ன?

வ. எண்	நேரம்	குறிப்பிட்ட நோக்கம்	பொருளடக்கம்	ஆராய்ச்சியரின் செயல்பாடு	வயது முதியவர்களின் செயல்பாடு	வயது முதியவர்களின் செயல்பாடு மதிப்பீடு:
4.	30 நிமிடங்கள்	அறிவாற்றலை மேம்படுத்தும் செயல் விளக்க வழி முறைகள்	**காட்சி பாகுபாடு பணித்தாள் படம்:** பணித்தாளில் ஒரு வரிசையில் நான்கு படங்கள் வீதம் நான்கு வரிசைகள் கொடுக்கப்பட்டிருக்கும் ஒரு வரிசையில் உள்ள நான்கு படங்களில் வித்தியாசமாக இருக்கும் படத்தை கண்டுபிடித்து வட்டமிடுதல் இதைபோல் நான்கு வரிசையில் உள்ள படங்களை கண்டுபிடித்தல். **வழி கண்டுபிடித்தல் திறன்:** 5 நிமிடத்தில் ஒவ்வொருவரும் அவரவருக்கு கொடுக்கப்பட்ட படத்தில் உள்ள வழியை கண்டுபிடித்தல். **நேரத்தை கணக்கிடுதல்:** பணித்தாளில் கொடுக்கப்பட்ட 4 முதல் 6 வரை உள்ள காட்சி அனலாக் கடிகாரத்தில் உள்ள சரியான நேரம் மற்றும் நிமிடங்களை பதிவு செய்யவும்.	நழுவம் உதவியுடன் விளக்குதல்   	கவனித்தல் மற்றும் கூர்ந்து கேட்டல்	பணித்தாளில் உள்ள வித்தியாசமான படத்தை அடித்தல் வேண்டும்? டைனோசர் வழியை அடையாளம் காண உதவுங்கள்? இப்போது நேரம் என்ன?

வ. எண்	நேரம்	குறிப்பிட்ட நோக்கம்	பொருளடக்கம்	ஆராய்ச்சியரின் செயல்பாடு	வயது முதியவர்களின் செயல்பாடு	வயது முதியவர்களின் செயல்பாடு மதிப்பீடு:
4.	30 நிமிடங்கள்	அறிவாற்றலை மேம்படுத்தும் செயல் விளக்க வழி முறைகள்	**எண்களை ரத்து செய்தல்:** பணித்தாளில் கொடுக்கப்பட்ட 0 முதல் 9 வரை உள்ள எண்களில் ஆராய்ச்சியாளரால் கொடுக்கப்பட்ட எண்ணை அடித்தல் **காட்சி நினைவாற்றல் திறன்** பணித்தாளில் கொடுக்கப்பட்ட 10 படங்களை பங்கேற்பாளரிடம் காண்பித்து 3 நிமிடங்களுக்கு பிறகு அவர்கள் பார்த்த படங்களை நினைவுபடுத்திக் கூற அனுமதித்தல் **சொல் நினைவாற்றல் திறன்:** ஆராய்ச்சியாளரால் 15 பொருட்களின் பெயர்கள் பட்டியலிடப்பட்டு, இரண்டுமுறை பயிற்சி அளித்த பின் 5 நிமிட இடைவெளிக்கு பிறகு நினைவுபடுத்தி கூறவேண்டும்.	நழுவம் உதவியுடன் விளக்குதல 2,8,5,6,4,0,5, 7,3,2,8,0,6,8, 0,4,2,7,1,9,3  1.ஆடு 2.மீன் 3.அலுவலகம்	கவனித்தல் மற்றும் கூர்ந்து கேட்டல்	இந்தபணித்தாளில் எண் ஐந்தை அடித்தல் வேண்டும்? பணித்தாளில் நீங்கள் பார்த்த படங்களின் பெயர்களை சொல்லுங்கள்? நான் கூறிய பொருள்களின் பெயர்களை திரும்ப சொல்லுங்கள்?

வ. எண்	நேரம்	குறிப்பிட்ட நோக்கம்	பொருளடக்கம்	ஆராய்ச்சியரின் செயல்பாடு	வயது முதியவர்களின் செயல்பாடு	வயது முதியவர்களின் செயல்பாடு மதிப்பீடு:
5	30 நிமிடங்கள்	அறிவாற்றலை மேம்படுத்தும் செயல் விளக்க வழி முறைகள்	**நரம்பு உளவியல் புனர் வாழ்வின் நன்மைகள்** ✶ சிக்கலைத் தீர்க்கும் திறன்களை மேம்படுத்துதல் ✶ மனோவியல் செயல்பாட்டை மேம்படுத்த உதவுகிறது. ✶ இது புலனுணர்வு (அறிவாற்றல்)பற்றாக்குறையை தடுக்கிறது. ✶ பதற்றத்தை குறைக்கிறது. ✶ இது தூக்கத்தை ஊக்குவிக்கிறது. ✶ மனிதனின் தனிப்பட்ட திறனை மேம்படுத்துகிறது. ✶ இது நிர்வாக திறமையை குடும்பத்திலும் மற்றும் வெளியிலும் மேம்படுத்த உதவுகிறது. ✶ இது செயல்திறனை ஊக்குவிக்கிறது. ✶ மூளை வேதி இரசாயன கடத்திகளை உயர்த்த உதவுகிறது.	நழுவம் உதவியுடன் விளக்குதல்	கவனித்தல் மற்றும் கூர்ந்து கேட்டல்	பதற்றம் என்றால் என்ன? திறன் என்றால் என்ன?

வ. எண்	நேரம்	குறிப்பிட்ட நோக்கம்	பொருளடக்கம்	ஆராய்ச்சியரின் செயல்பாடு	வயது முதியவர்களின் செயல்பாடு	வயது முதியவர்களின் செயல்பாடு மதிப்பீடு:
5.	10 நிமிடங்கள்	நரம்பு உளவியல் புனர் வாழ்வின் நன்மைகளை குறிப்பிடுதல்	✶ இது சுயமரியாதை மற்றும் நல்ல மனநிலையை மீண்டும் உருவாக்க உதவுகிறது. ✶ கவனம் மற்றும் செறிவு மேம்படுத்த உதவுகிறது. ✶ அறிவாற்றல் புனர் வாழ்வு மூலம் வாழ்க்கையில் மாற்றம், மற்றும் சுதந்திரத்தையும் கொடுக்கிறது.	நழுவம் உதவியுடன் விளக்குதல்	கவனித்தல் மற்றும் கூர்ந்து கேட்டல்	சுயமரியாதை என்றால் என்ன?
6	8 நிமிடங்கள	நரம்பு உளவியல் புனர் வாழ்வில் முதியவர்களின் பங்கு பற்றிய விவாதித்தல	**நரம்பு உளவியல் புனர் வாழ்வில் முதியவர்களின் பங்கு** ✶ முதியவர்கள் ஆராய்ச்சியாளர்களுக்கு ஒத்துழைக்க வேண்டும். ✶ முதியவர்கள் தங்களின் அறிவாற்றலை புரிந்து கொள்ளவேண்டும். ✶ அவர்கள் நரம்பியல் உளவியல் புனர்வாழ்வு நுட்பம் பற்றிய நன்மைகள் புரிந்து கொள்ளவேண்டும்.	நழுவம் உதவியுடன் விளக்குதல	கவனித்தல் மற்றும் கூர்ந்து கேட்டல்	

வ. எண்	நேரம்	குறிப்பிட்ட நோக்கம்	பொருளடக்கம்	ஆராய்ச்சியரின் செயல்பாடு	வயது முதியவர்களின் செயல்பாடு	வயது முதியவர்களின் செயல்பாடு மதிப்பீடு:
6	8 நிமிடங்கள்	நரம்பு உளவியல் புனர் வாழ்வில் முதியவர்களின் பங்கு பற்றிய விவாதித்தல	✶ முதியவர்கள் நரம்பியல் உளவியல் புனர்வாழ்வு நுட்பத்தை சரியான வழியில் பின்பற்ற வேண்டும். ✶ ஆராய்ச்சியாளருடன் நெருக்கமாக பணிபுரிதல் வேண்டும் ✶ முதியவர்கள் அறிவாற்றலை மேம்படுத்துவது எப்படி என்பதை புரிந்து கொள்ளவேண்டும். ✶ முதியவர்கள் பிற பங்கேற்பாளர்களுடன் தகவலை பகிர்ந்துகொள்ளவேண்டும். ✶ அவர்கள் சுய ஊக்குவிப்பு மற்றும் சுய ஆர்வத்துடன் இருக்கவேண்டும். ✶ ஆராய்ச்சியாளருடன் சேர்ந்து சந்தேகங்களை தெளிவுபடுத்தீ கொள்ளவேண்டும்.	நழுவம் உதவியுடன் விளக்குதல்	கவனித்தல் மற்றும் கூர்ந்து கேட்டல்	சுய உந்துதல் என்றால் என்ன?

சுருக்கவுரை

முதியவர்களில் மிகவும் பொதுவான பிரச்சனைகளில் ஒன்று நினைவு குறைபாடு ஆகும். நரம்பு உளவியல் புனர்வாழ்வின் வழியாக நினைவாற்றலை மேம்படுத்துகிறோம். இதில் நாம் என்னவெல்லாம் பார்த்தோம் என்றால் நரம்பு உளவியல் புனர்வாழ்வின் பொருள் நரம்பு உளவியல் புனர்வாழ்வு பயற்சி யாருக்கு தேவைப்படுகின்றது நரம்பு உளவியல் புனர் வாழ்வின் வகைகள் அறிவாற்றலை மேம்படுத்துவதற்கான வழ முறைகள் நரம்பு உளவியல் புனர் வாழ்வின் நன்மைகள் நரம்பு உளவியல் புனர் வாழ்வில் முதியவர்களின் பங்கு ஆகியவை இப்பயிற்சியில் விளக்கமாக கூறப்பட்டுள்ளது.

APPENDIX – XIV

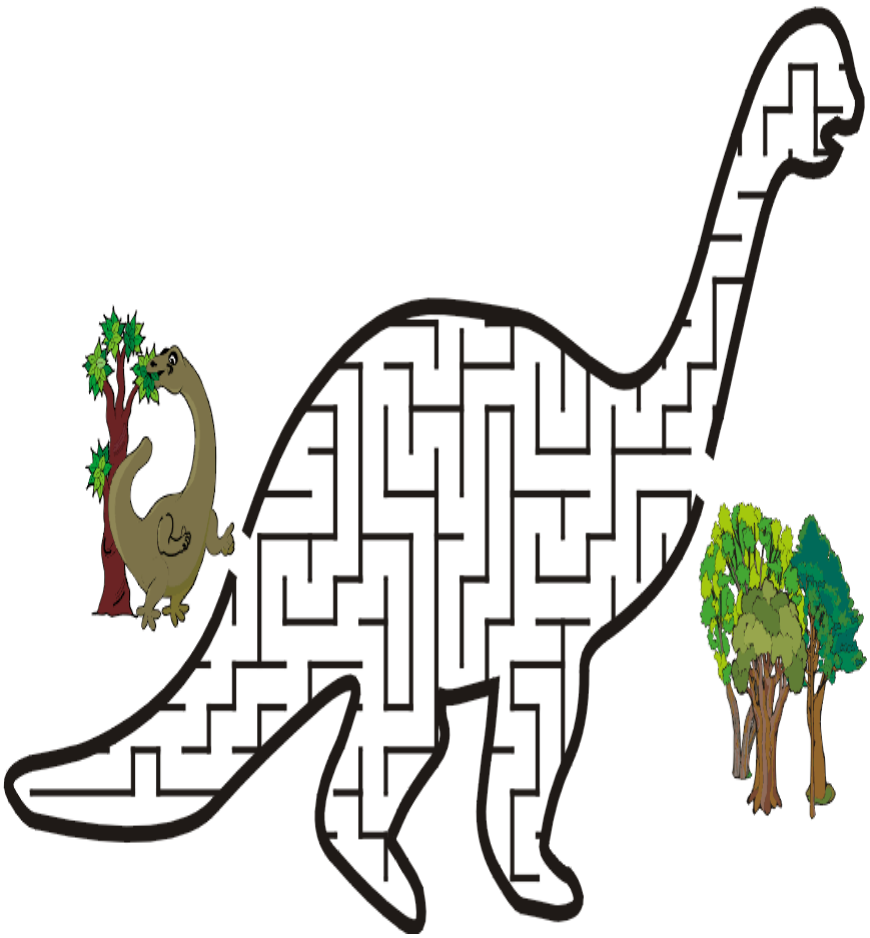
FLASH CARDS

Tracing mazes:

Individual subjects were ask to play tracing mazes and complete the maze 5 minutes

வழி கண்டுபிடித்தல் திறன்:

5 நிமிடத்தில் ஒவ்வொருவரும் அவரவருக்கு கொடுக்கப்பட்ட படத்தில் உள்ள வழியை கண்டுபிடித்தல்.

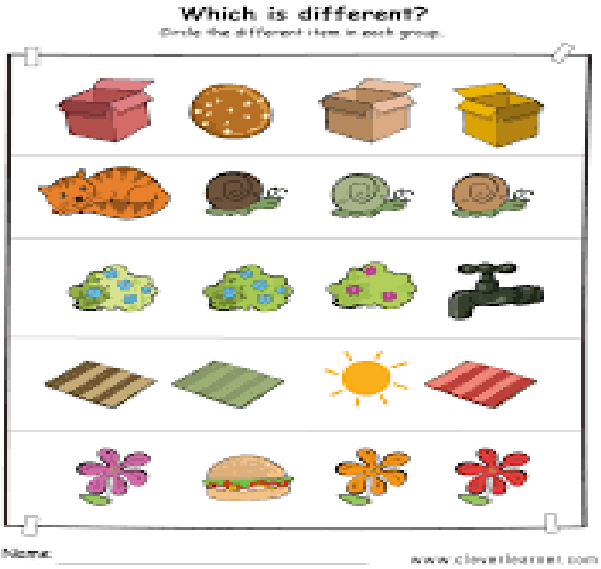


Visual discrimination work sheet task

The work sheet contains pictures assembled in 4 pictures in one row with 4 columns. Ask the individual participants to observe and identity the different with the same picture.

காட்சி பாகுபாடு பணித்தாள் படம்

பணித்தாளில் ஒரு வரிசையில் நான்கு படங்கள் வீதம் நான்கு வரிசைகள் கொடுக்கப்பட்டிருக்கும் ஒரு வரிசையில் உள்ள நான்கு படங்களில் வித்தியாசமாக இருக்கும் படத்தை கண்டுபிடித்து வட்டமிடுதல் இதைபோல் நான்கு வரிசையில் உள்ள படங்களை கண்டுபிடித்தல்.



IN TIME LAPSE

The work sheet contains **4**-6 visual analog clocks ask the participants to see and mark the exact time display in the clock

நேரத்தை கணக்கிடுதல்

பணித்தாளில் கொடுக்கப்பட்ட 4 முதல் 6 வரை உள்ள காட்சி அனலாக் கடிகாரத்தில் உள்ள சரியான நேரம் மற்றும் நிமிடங்களை பதிவு செய்யவும்.

NUMBER CANCELLATION

Number cancellation task: Numbers from 0-9 are being displayed in an unorganized jumbled manner in the work sheet. **A**sk the participants to strike out a specific number given by the researcher.

எண்களை ரத்து செய்தல்

பணித்தாளில் கொடுக்கப்பட்ட 0 முதல் 9 வரை உள்ள எண்களில் ஆராய்ச்சியாளரால் கொடுக்கப்பட்ட எண்ணை அடித்தல்

3	7	4	1	6	0	2	8	9	5
9	2	8	4	0	6	3	7	5	1
6	3	8	1	4	5	0	2	7	9
2	3	1	7	8	0	4	5	9	6
0	5	4	2	1	8	6	3	9	7
8	7	5	0	2	9	8	4	3	6
3	8	7	9	4	1	5	0	2	6
5	0	3	7	9	6	8	1	2	4
7	5	8	0	2	9	3	4	6	1

Visual discrimination work sheet task

The work sheet contains pictures assembled in 4 pictures in one row with 4 columns. Ask the individual participants to observe and identity

காட்சி நினைவாற்றல் திறன்

பணித்தாளில் கொடுக்கப்பட்ட 10 படங்களை பங்கேற்பாளரிடம் காண்பித்து 3 நிமிடங்களுக்கு பிறகு அவர்கள் பார்த்த படங்களை நினைவுபடுத்தி கூற அனுமதித்தல்





WORD MEMORY

15 name of the items list out by the researcher for 2 times ask the participants and allow 5 minutes to recollect the items already list out by the researcher

சொல் நினைவாற்றல் திறன்

ஆராய்ச்சியாளரால் 15 பொருட்களின் பெயர்கள் பட்டியலிடப்பட்டு இரண்டு முறை பயிற்சி அளித்த பின் நினைவுப்படுத்துதல் வேண்டும்.

1. ஆடு
2. மீன்
3. விளையாட்டு
4. விவசாயம்
5. தொலைக்காட்சி
6. கண்ணாடி
7. வயல்
8. கட்டில்
9. மன்னன்
10. மக்கள்
11. குழந்தைகள்
12. கதவு
13. அலுவலகம்
14. கடிகாரம்
15. பட்டம்

APPENDIX-XV

PHOTOGRAPHY

THE RESEARCHER TEACH THE OLDER PEOPLE